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Institute for Medicaid Management

Conference Report: Management of State Medicaid Drug Programs

October 17-19, 1977

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MANAGEMENT OF STATE MEDICAID DRUG PROGRAMS

Conference Report

Sponsored by

The Institute for Medicaid Management
Medicaid Bureau (MMB)
Health Care Financing Administration
Department of Health, Education, and Welfare

Albuquerque, New Mexico
October 17 - 19, 1977

TABLE OF CONTENTS

	PAGE
PREFACE	1
CONFERENCE AGENDA	2
KEYNOTE ADDRESS	7
CONFERENCE PAPERS	37
The Maximum Allowable Cost (MAC) Program Data Charles Spalding	39
Discussion of Possible Uses of Range Data in State Programs George Levey	55
Maryland's Experience With EAC Norbert G. Lassahn	
A Study of the Impact of Ambulatory Drug Therapy on Hospitalization Sharon Marcum	68
Drug Utilization Review Rod Palmieri	78
Surveillance and Utilization Review Thomas A. Gaylord.	88
Arkansas S/URS II Drug Profiles Debbie Dodson	94
Public and Private Sector Roles in the Quality and Cost of Medical and Pharmaceutical Services M. Keith Weikel, Ph.D.	102
Lock-in Program System Flow Specification Gene Thomas	117
Utilization Management Techniques: Texas Medicaid Program Roy Wiese, Jr.	126

TABLE OF CONTENTS (CONTINUED)

Dollar Limits and Prescription Limits
H.W. Stansberry 142

Iowa Dispensing Fee Survey
Ronald J. Mahrenholz. 146

LIST OF CONFERENCE PARTICIPANTS. 154

APPENDIX 170

PREFACE

Management of State Medicaid Drug Programs, one of a series of national conferences conducted by the Institute for Medicaid Management, was held in Albuquerque, New Mexico on October 17-19, 1977. The purpose of the conference was to provide for an exchange of ideas and information on Medicaid Drug Programs as well as an opportunity for State personnel to discuss the management procedures and utilization controls they employ to administer their programs effectively.

Comprising the group of 165 participants were the State Medicaid Drug Program directors and their pharmacy consultants from thirty-two States; Federal personnnel from both the central and regional offices of the Medicaid Bureau; and from the private sector, representatives from drug manufacturers and consulting firms.

The conference format included a number of open sessions wherein Federal and State representatives focused on reimbursement and management problems; a series of three workshops in which State personnel discussed control mechanisms; and the presentation of preliminary results of a study entitled "Impact of Inappropriate Ambulatory Drug Therapy on Hospitalization." Due to interest in the results of this study, the final version has been included in the appendix.

This report is a compilation of the majority of presentations made at the conference. Also included are a detailed agenda and a directory of participants.

INSTITUTE FOR MEDICAID MANAGEMENT CONFERENCE

MANAGEMENT OF STATE MEDICAID DRUG PROGRAMS

AGENDA

Monday, October 17, 1977

6:00 PM - 8:00 PM	Convention Lobby	Conference Registration

Tuesday, October 18, 1977

8:00 AM - 9:00 AM	Convention Lobby	Conference Registration
9:00 AM - 9:15 AM	Santa Ana/Sandia and Picuris Rooms	Welcome Lawrence Levinson Acting Director Institute for Medicaid Management
General Session		Opening Remarks Henry Spiegelblatt Acting Director Division of Policy and Standards
9:15 AM - 10:00 AM	Santa Ana/Sandia and Picuris Rooms	Overview of Drug Program Management Robert Johnson Executive Vice-President California Pharmaceutical Association
10:00 AM - 10:30 AM		COFFEE BREAK
10:30 AM - 11:15 AM	Santa Ana/Sandia and Picuris Rooms	Presentation of Range Data and discussion of its use in establishing Estimated Acquisition Costs for drugs Vince Gardner and Charles Spalding Office of Pharmaceutical Reimbursement

Tuesday, October 18, 1977 (continued)

3:15 PM -5:15 PM	Santa Ana/Sandia and Picuris Rooms	Provider and Recipient Profiling Four Approaches - Drug Utilization Review Rod Palmieri California Chief, Drug Utilization Review Unit S/UR Thomas Gaylord Minnesota Director, S/UR Unit S/UR II Debbie Dodson Arkansas Medical Services Section Medicaid Profiles Michael O'Donnell Maine Drug Program Coordinator
5:15 PM - 5:45 PM	Santa Ana/Sandia and Picuris Rooms	Comments M. Keith Weikel, Ph.D. Acting Medicaid Bureau Director

Wednesday, October 19, 1977

9:00 AM - 9:45 AM	Santa Ana/Sandia and Picuris Rooms	Unit Dose--Pros and Cons George Freedman Health Resources Administration
General Session		Sanford Luger New Jersey Chief Pharmaceutical Services

Tuesday, October 18, 1977 (continued)

11:15 AM - 12:15 PM	Santa Ana/Sandia and Picuris Rooms	Discussion of possible uses of Range Data in State programs George Levey Massachusetts Director, Medicaid Pharmacy Program
General Session		Norbert Lassann Maryland Chief, Invoice Processing
12:15 PM - 1:45 PM	Ballroom A	Luncheon and Speaker Dr. Mark Novitch Deputy Associate Commissioner for Medical Affairs, Food and Drug Administration
1:45 PM - 2:45 PM	Santa Ana/Sandia and Picuris Rooms	Presentation of Study - "Impact of Inappropriate Ambulatory Drug Therapy on Hospitalization" M. Lee Morse President, Health Information Designs, Inc.
General Session		Aida LeRoy Executive Vice-President Health Information Designs, Inc. Thomas Gaylord Minnesota Director, S/UR Unit Sharon Marcum Arkansas Utilization Review Supervisor
2:45 PM - 3:15 PM		COFFEE BREAK

Wednesday, October 19, 1977 (continued)

9:45 AM - 10:45 AM	Santa Ana/Sandia and Picuris Rooms	Workshop A: Lock-in programs Gene Thomas Kentucky Division of Medical Assistance Linda D. Wilson Kentucky Division of Medical Assistance
	Navajo/Nambe Rooms	Workshop B: State experience with dollar limits and prescription limits Roy Wiese Texas Program Manager Pharmacy Services Division Howard Stansberry Oklahoma Medical Services Division
	Jemez/Isleta Rooms	Workshop C: Construction of dispensing fee surveys and their uses George Levey Massachusetts Director Medicaid Drug Program Ronald Mahrenholz Iowa Manager Utilization Review Unit
10:45 AM -11:15 AM		COFFEE BREAK
11:15 AM — 12:15 PM	Santa Ana/Sandia and Picuris Rooms	Workshop A: Same as above
	Navajo/Nambe Rooms	Workshop B: Same as above
	Jemez/Isleta Rooms	Workshop C: Same as above

Wednesday, October 19, 1977 (continued)

12:15 PM - 1:30 PM		LUNCH BREAK
1:30 PM - 2:30 PM	Santa Ana/Sandia and Picuris Rooms	Workshop A: Same as previous page
	Navajo/Nambe Rooms	Workshop B: Same as previous page
	Jemez/Isleta Rooms	Workshop C: Same as previous page
2:30 PM - 3:30 PM	Santa Ana/Sandia and Picuris Rooms	Presentation: Council of Third Party Prescription Drug Programs William Shultz
3:30 PM - 4:00 PM		BREAK
4:00 PM - 5:00 PM	Santa Ana/Sandia and Picuris Rooms	Panel of States: Presentation on Drug Reimbursement based on Actual Acquisition Cost J.L. Hall Michigan William Pace Washington
5:00 PM - 5:10 PM	Santa Ana/Sandia and Picuris Rooms	Conference Closing

KEYNOTE ADDRESS:

OVERVIEW AND OBJECTIVE OF DRUG PROGRAM MANAGEMENT

Dr. Robert C. Johnson
Executive Vice President
California Pharmaceutical Association

When I received the invitation from HEW to address this conference of Medicaid officials, I was at first reluctant to accept. I questioned whether a layman's views would be considered by government officials, many of whom have gained a considerable degree of expertise in the subject I was asked to present. After reflecting on the matter for a few days, however, I decided to accept, for in working with government leaders during the past 17 years I have found that many, the more expert at least, are willing to consider the advice of those outside government. Often, such views offer a fresh perspective and when considered objectively they make a contribution to program improvements.

In nearly two decades of executive management I have concluded that for our system of government to be effective and serve public needs it is essential for government officials and private-sector spokesmen to work cooperatively and complementarily. I have long advocated that the professions and government must collaborate as partners if our health care system is to deliver at optimal levels.

Having offered this brief philosphical introduction let me now begin this presentation by answering the question, "Why include drug coverage under the Title XIX program?" It only stands to reason that if a government-funded health care system is to provide for diagnosis of illness it must also provide for treatment. It does little good to merely point

out problems and then do nothing about them. And when I say treatment I am not only talking about costly hospitalization and surgery but much less expensive drug therapy as well.

Milton Silverman, in his report on drug coverage under National Health Insurance, said this: "Of primary importance is the recognition that the use of drugs, although it represents only about one-tenth of the Nation's enormous health care expenditures, is one of the most important and certainly the most widely used forms of therapy.

--Each year, roughly one-half of all patients visiting a physician's office receives a prescription. On the average, each hospitalized patient gets eight prescriptions during his hospital stay.

--Even though drug expenditures are now many billions of dollars a year, the use of drugs is one of the least expensive types of treatment.

--When used rationally, drugs can minimize far more costly alternatives--needless (and sometimes dangerous) surgery, needless hospitalization, and needless office visits.

--It is all too evident that the use or misuse of drugs can injure or kill, but it is equally apparent that the harm caused by drugs is far outweighed by their benefits."[1]

Furthermore, it is not enough to just provide drugs, we must also see to it that patients are taking the drugs that are provided.

But if the drug benefit is excluded from a health program designed for the sick and needy it is doubtful in many instances that the physician's prescribed treatment will be adhered to by the patient. When such non-compliance occurs it often leads to unnecessary and expensive hospitalization.

So, it is essential to recognize that if patient needs are to be properly served and costly expenditures such as hospitalization are to be minimized, under a government-financed program, something beyond the drug product itself must be involved. A total pharmaceutical service benefit is a necessary requirement of any properly administered health care program.

Let me define a pharmaceutical service benefit by describing its objectives.

First, it is essential to ensure the rational use of drugs. Without it, the level of patient care will be far less than optimal.

Second, the patient's drug regimen must be monitored on an ongoing basis to ensure compliance and proper drug usage.

Third, drug cost must be contained at the lowest level consistent with good quality.

Dr. Philip Lee, former HEW Assistant Secretary for Health, has described the objective of a drug program as one that "will involve the ability of governmental officials to utilize their imagination and their innovative skills in designing and operating a program that is aimed not primarily at providing administrative ease and simplicity, but at providing the maximum benefits and the highest quality of health care at the lowest practical administrative costs."[2]

I submit that the citizens of our country deserve a health system that meets Dr. Lee's objectives and I'm further convinced that it can be accomplished in part by including the pharmaceutical service benefit we have described.

Keeping in mind these objectives let us examine the elements of a good program.

First, with regard to the drug component, coverage should be broad enough to assure an adequate armamentarium to treat all common disorders. Further, drugs needed to treat rare or unique conditions should be available, after prior authorization, for those exceptional cases.

In order to achieve this goal it appears that a formulary approach would be most acceptable. The formulary should be designed to be consistent with <u>current</u> clinical judgments. This can best be accomplished through the use of a formulary task force or advisory committee consisting of clinical practitioners in pharmacy and medicine.

The formulary should be structured in such a way as to meet our first objective of pharmaceutical service benefit: the rational use of drugs. The HEW Task Force on Prescription Drugs has defined rational prescribing in simplified terms as the "right drug for the right patient in the right amounts and with due consideration of relative costs."[3]

Examples of such would be the exclusion of irrational drug combinations and duplicative products such as those sometimes used in hypertension control. Another example would be limiting the use of thiazide diuretics to only one from each of the three classes, based upon onset and duration of action.

Also to meet the definition of rational drug use and cost containment, the formulary should provide for the inclusion of certain over-the-counter drugs, the most obvious being insulin, antacids, and analgesics.

Program costs can be reduced through the appropriate use of non-legend drugs. The California Medi-Cal program in Fiscal Year 1976 paid almost $7 million for 1.2 million prescriptions of APC with Codeine (1/2 gr) because no other non-narcotic analgesics was available in the formulary. If non-narcotic analgesics such as aspirin or acetaminophen had been available, this would have reduced program costs significantly.

A soundly administered program should also take into consideration the fact that self-medication will frequently fulfill patient health care needs, especially if the patient has access to health counseling. There are routine symptomatic

conditions which can be treated with less costly over-the-counter drugs if patients are assisted in their self-diagnosis and can be properly counseled on the use of these drugs. This is particularly true with antacids, anti-diarrheals, cough and cold preparations, and analgesics.

There are many cases where aggravating conditions have gone untreated. This has often led to more critical episodes that required more costly physician attention and at times even hospitalization.

This leads us to the second aspect of a good program, namely professional services.

If we assume that an adequate provision of rational drugs is available, the primary concern becomes one of assuring that the drug therapy will result in the intended outcome.

Problems of noncompliance with drug regimens have been well documented in the literature.[4-12] While operational definitions of noncompliance and methodologies vary among investigators, the fact is that many patients are poorly informed about their drugs and have difficulty self-administering prescribed medications. This has been documented in a cross-section of patient populations. While these problems dealing with compliance have been recognized for years, it is only recently that this issue has been placed in perspective as a result of studies appearing in the literature. Hussar, in reviewing the litrature, reports that

in most studies at least a third of the patients failed to comply with instructions and, in some instances, the rate of noncompliance exceeded 50 percent.[9]

There have been numerous reasons identified for patient non-compliance. Among them:

- patient anxiety
- limited physician time with the patient
- limited or vague physican instructions
- patient misinterpretation
- multiple medications and instructions
- patient self-overdosing
- early discontinuance of medication (e.g. antibiotics)

The literature is also replete with instances where hospital admissions are the sad result of inadequate monitoring of drug therapy.[13-17] Our personal experience validates what we know is in the literature. Our present system of providing health care is less than optimal.

What steps then can be taken to improve this situation? We have often heard the statement that the pharmacist is the most over-educated or under-utilized health professional. Health planners, government officials and others, while making this statement, have done very little to encourage greater use of the pharmacists' expertise in drug therapy. The pharmacist's role as a drug consultant provides a virtually unlimited

potential for successful intervention and prevention of prescription drug misuse.

With regard to pharmacist monitoring of patient drug therapy, it is important not to overlook the problems of medical malpractice and the necessity of physicians to utilize the assistance of pharmacists in avoiding potentially compensable events. A recent study conducted jointly by the California Medical and Hospital Association revealed that drugs were responsible in 118.8% of occurrences leading to potential compensable events, such as malpractice settlements. Most of these occurred in outpatient settings.[18]

The pharmacist's role in minimizing noncompliance must not be underestimated. Pharmacists represent an immediately-available, easily-accessible, well-identified but underutilized professional health manpower pool able to make a significantly larger contribution in the delivery of health care services. As a highly-trained member of the health care team located primarily in the community, the pharmacist in his "storefront" clinical setting is in a unique position of providing personalized care at a reasonable cost.

Since the pharmacist is generally the last person among health professionals to have contact with the patient, he is in a position to reinforce the physicians' instructions; to inform the patient of supplemental instructions about how the drug should be used; to alert patients to special precautions

that should be observed, such as how the medication should be stored; and assist in patient education concerning drug usage. The purpose of such consultation is to assure that the prescriber's intentions will materialize in a drug regimen of optimal effectiveness, safety and duration.

The patient profile, properly used, provides the pharmacist with a complete drug history of the patient, including allergic reactions or other drug sensitivities or toxicities. It is indispensible in avoiding adverse drug reactions when the patient is receiving multiple prescriptions from the same or a varity of physicians. Further, if the pharmacist encourages the patient to report over-the-counter drugs that he is taking, the pharmacist will identify potential interactions between prescribed and self-medicated therapies.

While some States -- New Jersey, Maine, Washington -- have mandated the use of patient profiles through statute or regulations, others have found that peer pressure or potential malpractice exposure is sufficient inducement and this has resulted in a significant increase in profile usage by pharmacists. The California Pharmaceutical Association has adopted a policy calling for amendment to the State Title XIX (Medi-Cal) regulations defining patient consultation and profiles as pharmaceutical services required under the program with commensurate remuneration for such services.[19] This action is indicative of the interest

displayed throughout the profession in enabling the pharmacist to fulfill a more meaningful role in patient care.

With respect to the Medicaid program, it is our contention that the appropriate use of pharmacists as a member of the health team, as we have described, will result in reduction of hospital admissions, fewer physicians visits and elimination of unnecessary emergency room utilization.

Now, with regard to reimbursement, most Medicaid programs compensate for pharmaceutical services on the basis of a professional fee in addition to remuneration for drug product cost. Product costs, however, are currently determined in a variety of ways which we will endeavor to describe, discussing the advantages and disadvantages of each.

The most widely used method of reimbursing for product cost is average wholesale price or AWP. AWP is generally defined as the average cost of a drug product through the drug wholesale distribution system or the price at which the drug is or should be generally obtainable — that is, if manufacturers and wholesalers followed a uniform pricing system for all classes of purchasers. We know, of course, that such is not usually the case. The advantage of AWP is that the price is easily discernible from published price lists (i.e. Red Book or Blue Book) and can be easily programmed into a computer system, thus facilitating administration.

The disadvantage of AWP is that it may be higher than the actual cost paid by the pharmacist; it compensates some providers at grossly exaggerated reimbursement levels. And there is no incentive for controlling manufacturing costs.

Another product reimbursement mechanism is Actual Acquisition Cost, AAC. The advantage of this system is that it fairly compensates all providers for their true and actual product costs, thereby eliminating arbitrary estimates. It controls inflated "100 price" vis-a-vis the usually purchased larger quantity package sizes, 500 or 1000.

The disadvantage of AAC is that it is difficult to determine because of the vast pricing differentials at which drug products are sold. Thus, unlike AWP there is no single acquisition cost which can be easily entered into a computer system.

A recently established reimbursement scheme is that known as Estimated Acquisition Cost, or EAC. This bastardized take-off of actual acquisition cost was recently perpetrated by HEW when it lacked the intestinal fortitude to implement AAC due to pressure group opposition. There is no legitimate definable means of determining this amount other than somebody's guess. Since it is purely a fictitious price, generally without relevance to most drug purchases, it should be abandoned before any further insanity creeps into this foolhardy reimbursement system. One can only determine in discussion

with some HEW officials that it is a term they wish now they had never heard of. It is my belief, and that of others, that HEW and the States using the EAC system are clearly vulnerable to litigation for attempting to devise a scheme for which there is no statutory authority nor economic basis in the marketplace.

Maximum allowable cost, MAC, is yet another reimbursement level also used as a control mechanism to contain product cost. Maximum allowable cost is a drug product price established by government, presumably with advice from the profession, at which a multiple-source drug is available from a supplier accessible to all purchasers. The MAC concept had its origin in California where it is known by the acronym MAIC, Maximum Allowable Ingredient Cost. It has been in effect on a variety of multi-source drugs for a number of years and has had a cost-saving effect on the Medi-Cal budget. MAIC is generally supported by the profession. It can be universally administered and should be updated as market conditions change.

It is this approach, the maximum allowable cost reimbursement mechanism, which HEW originally set out to implement in 1974 before becoming sidetracked on this utterly ridiculous EAC scheme. And it is this approach to which HEW and the States ought to return forthrightly.

While on the subject of product costs, let me comment, the prices paid for drugs must be those prices in force at the time the service is rendered. During calendar year 1976 Medi-Cal reported 5,073 drug price changes which resulted in cost increases of $2,526,000.

These costs are beyond the control of pharmacists. The failure of the Medicaid program to reflect these changes in compensation to providers is grossly unjust, and makes a travesty of the integrity of program officials.

Failure to update product costs results in a reduction of the pharmacist's fee and creates an economic loss that providers are unable to absorb. If drug product cost increases are not updated as they occur--and they occur all too frequently--will it not result in a pharmacist's refusal to provide services? Will this not encourage program manipulation which is undesirable but may be found necessary by some for economic survival?

Next, let us turn to the professional component of the reimbursement system. HEW now requires use of the professional fee rather than a percentage mark-up as the basis for compensation. One can already determine from the language contained in the Federal regulations that it was the intent to pay usual, customary and reasonable fees based upon current market data as determined from mandated fee studies. To date, however, States have made little effort to in fact implement this aspect of the regulation. Most States presently are reimbursing on an average

Statewide professional fee which generally was not based on any sound financial data when it was first established upon implementation of the Title XIX Program in the respective State. Furthermore, vast numbers of States have not adjusted this to meet annual inflationary cost-of-living increases, creating an economic hardship for many practitioners that is unparalleled in our health delivery system. Many pharmacists, in order to survive, have had to greatly escalate costs to their private-paying patients in order to compensate for underpayment by the government. Thus, the burden for government inequities frequently falls on the shoulders of those least able to pay, namely our senior citizens who are the greatest users of drugs in the private pay sector. Medicaid officials and legislative bodies must take prompt action to relieve this inequitable situation.

In further considering the "average professional fee" currently in vogue in most Sates, it is important to recognize the problem it presents. If a professional fee is, in fact, "average," it will by definition over-compensate about one-half of the providers and under-compensate the other half.

Also, it must be recognized tnat it is really not a professional fee but, in fact a dispensing fee, inasmuch as it includes no provision or incentive for rendering professional services which we previously discussed. If it

wishes to provide a quality level of care to which all citizens of this country are entitled, the Medicaid system must ensure that rational drug usage is properly monitored and that patient compliance is guaranteed as much as possible to avoid costly and unnecessary hospital costs. This will only be achieved when the drug benefit is looked upon as a part of an essential comprehensive health servce with realistic compensation for provision of such services.

When analyzing the cost studies that have been conducted in some States, it is evident that there are wide variations in fees among pharmacies which cannot be adequately reflected in an average fee. The range in Florida, for example, was $1.18 to $4.02; Colorado, $1.12 to $5.42; and in California, $0.77 to $6.25.

It is our firm belief that average fees must be abandoned and replaced with a variable or pharmacy-specific fee which is based on true operating costs with a provision for a reasonable return on investment. This will resolve the inequities of the average fee and will provide the incentive for the provision of essential professional services.

Present compensation on the basis of average fee is equivalent to establishing one single salary level for all State employees, regardless of their level of responsibility. If this practice was currently applied, most middle- or upper-management individuals would receive a significant salary cut.

When Governor Brown proposed a similar scheme for State employees' salary increases in California a year ago, there was a hue and cry raised in Sacramento by middle- and upper- income State workers that must have been heard at the pinnacle of the Sierras. The California State Employees Association saw to it that this absurd approach was not repeated this year when salary increases were written into the State budget. Yet some of these State employees insist on applying this same absurdity for the private sector "employees," those providers participating in the Medicaid program. Maybe Governor Brown was correct -- what is good for the goose should be good for the gander.

Lately, there has been a great deal written and spoken about drug utilization review. But that is the problem -- all talk and no real action. Speaker after speaker at the National Center for Health Services Research Conference in Washington, D.C. a few days ago hailed the need for a value of Drug Utilization Reviews. But they were reminded that the concept exists only in the minds of health planners and progressive program administrators. The vast number of State programs pay lip service to this approach to curb costs and over-utilization. The reason for this situation is that some bureaucrats look to DUR as an encroachment upon their employment responsibilities and thus in order to preserve their job security they demean the concept by not giving it a chance. Other attempts at DUR are failing due to inadequate funding

and staffing of the Drug Utilization Review Committee. Or, because appropriate procedural guidelines have not been developed.

In an effort to assist our Department of Health in implementing a Drug Utilization Review system, the California Pharmaceutical Association in consultation with the Department developed the guidelines for the program.[20]

In this document we stated, "The main function of the Committee is to evaluate existing pharmacy practice and to educate fellow professionals as to the prevalent standards of practice in an effort to achieve high standards of patient care through promotion of rational drug therapy."

The functions of the Drug Utilization Review Committee are:

1. to identify local standards of practice
2. to identify criteria to monitor adherence to these standards
3. to educate practitioners
4. to refer abuses to program administrators if education does not alter practice

Two studies of Drug Utilization Review Committee activities in California indicate that through education of just 11 pharmacists annual savings of $200,000 resulted from changes in practice. You can readily see that immense saving will be achieved if this concept is universally applied. Of even greater

importance is the improved patient care, a result of more rational prescribing.

In continuing our discussion on the elements of a good program, let's turn our attention to patients in long-term care facilites.

Program administrators must recognize that there is no similarity between long-term care patients and ambulatory patients any more than there is similarity between acute care and ambulatory patients.

Under some existing Medicaid programs, long-term care patients are provided the same drug benefits as ambulatory patients. Thus, many needed drugs, especially injectables, are not readily available and can only be obtained through a prior approval system. This situation is clearly not in the interest of the patient and only increases the program's administrative costs.

While on the subject of long-term care I would be remiss not to mention the drug regimen review responsibility that is required by Federal law and the corresponding necessity to compensate for this mandated function. While most Title XIX programs are strictly enforcing the Federal provisions and requiring pharmacists to do on-site review of long-term care patient charts, very few are paying for this services. California, New Jersey and Massachusetts are noted exceptions. I would add, however, that in California, the one required to

provide the service is not the one being directly paid for it. Instead, compensation is made through the nursing home with no assurance that it is, in fact, being passed on to the pharmacist. Such indirect payment, we have observed, greatly increases the potential for kickbacks. In such situations there is incentive to reduce the level of service to the point that only minimal compliance occurs, negating the intent of the law.

It is important to recognize that if the service is required, it must be paid for. Indirect payment could be satisfactory only if the State agency assumes responsibility to see to it that compensaion is totally and quickly passed on to the pharmacist.

Last, but of signifcant importance in our discussion of sound program elements, is the mechanism of claims processing. If we can't ensure the prompt and rational payment of claims, the integrity of the program will certainly suffer.

Lost claims and the expense of maintaining accounts receivable amounts to a significant overhead cost which few pharmacies can afford.

To give you an example of the magnitude of this situation, 1977 Fiscal Year expenditures for drugs in California was $144 million or $12 million per month. If claims are paid in 30 days, the 4,300 pharmacies in the State, excluding hospitals, would have an average accounts receivable of $2,800. Not many of us could sustain such a capital outlay. Obviously, payment must be prompt.

We must also strive to achieve an ease of claim submissions. For example, plastic ID cards should be utilized to increase accuracy of claims data and decrease provider processing time. Such cards could be made valid for longer periods, with proof of eligibility being provided to beneficiaries on a monthly or bi-monthly basis.

Another means of facilitating claims processing and reducing program cost is tape-to-tape transfer of billing claims. At least seven States -- Michigan, Texas, Ohio, New Jersey, Indiana, Maryland, and Massachusetts -- currently accept claims processing in this manner. I submit that all States can provide for this mechanism. It increases the accuracy of claims data and decreases administrative costs. Such savings should be shared with the pharmacist, who may experience an increase in his billing costs in order to provide computer-readable input. Some States are, in fact, sharing cost savings with pharmacists who are utilizing computer billing systems.

A final area of program activity that I will comment on is the necessity for undertaking studies dealing with government-financed health care delivery.

Several speakers at the National Center for Health Services Research Conference in Washington, which I previously mentioned, commented on the most regrettable fact that while Medicaid is now 12 years old, virtually no studies have been undertaken to

determine the effectiveness of existing care, or to evaluate methodologies for improving care, or to design rational approaches to curbing program costs, or to answer any of the numerous other questions that could have been answered just by taking advantage of the wealth of data that is obtainable in Title XIX programs.

If government officials advocate the expansion of government-financed health care through a national health insurance system, they have an obligation to the taxpayers who will pay for that system to use every resource available for the evaluation and documentation of the quality of health care and the testing of new and improved modes in the delivery of health care. In California, for example, numerous changes have been made in the scope and restrictions on coverage, but not a single effort has been made to collect even a shred of evidence on the effect of such changes on quality of care, or even the cost of such action.

In the California Pharmaceutical Association's Special Medi-Cal Report that I earlier referred to several recommendations have been made for such studies.[21]

As Medicaid officials and advisors to Medicaid programs, we should hang our heads in shame for the decade we have wasted by failing to study the program that offers research opportunities which could ensure a health delivery system second to none in this world.

We owe it to our taxpaying citizens -- what in heaven's name are we waiting for?

The remaining area that I have been asked to address is program control. Let me preface my remarks by saying that the more complicated the control, the more difficult it will be to ensure provider compliance.

One control that has been used with some degree of effectiveness is the drug formulary. Pharmaceutical manufacturers abhore formularies and cite a variety of nondescript references to prove that close-ended formularies actually increase program costs. I have not been favorably impressed with these claims. I tend to believe that a formulary, if it is complete enough to provide the ready availability of drugs to treat common disorders in a manner consistent with current clinical judgment, can in fact, be useful in containing program costs.

I would agree that formularies could be eliminated under the following conditions:

- rational prescribing by medical practitioners
- a fully implemented Drug Utilization Review Procedure
- an incentive for drug product selection of the lowest cost, multi-source drugs consistent with quality

I think we are well aware that these conditions, all be they administratively less expensive than formulary utilization, are not in effect at this time. Until they are, a formulary is a reasonable compromise. Our experience with a restricted

formulary system has caused me to believe that it is an effective means of greatly reducing or eliminating expenditures for ineffective drugs. It does provide a means for encouraging rational prescribing and does eliminate expenditures for excessively expensive drugs when lower cost medicinals are available in the same range of therapeutic classificaion.

It should be noted, however, that the content of the formulary should be determined in consultation with pharmacists and medical practitioners. This will not only help to assure appropriate clinical composition but professional acceptability as well. Furthermore, it should be reviewed and updated on a regular and timely basis. This is a deficiency which I regrettably admit exists today in California. There must also be provision for exceptions, based upon medical necessity. I feel this can best be accomplished through a prior authorization mechanism, preferably at the local drug utilization review committee level.

Another form of control is minimum dispensing quantities. A one-month supply of what is truly a chronic maintenance medication is generally supported by the profession. There is dissatisfaction, however, when ingredient costs are not adequately compensated. For example, in California, payment for psychotropic drugs like Prolixin^{R} is based upon the direct price of packages of 500.

Again, the integrity of the program suffers and patient care is unnecessarily interfered with when program administrators insist on focusing controls such as minimum quantity limitations on all drugs, three in 75-day refill limitations, a monthly limitation on the number of prescriptions that can be written, and other "Mickey-Mouse" controls that we continue to experience in some States. I might add that no studies have ever been concluded, to my knowledge, to substantiate the effectiveness of such controlling mechanisms. These controls nevertheless exist because of the figments of imagination that float around in some government administrators' heads.

I submit, once again, that implementation of a meaningful drug utilization system will be less costly and a more effective means of controlling program costs.

Another control that has been attempted without success is what has been termed in California a Code One restriction -- that is, limiting the use of certain formulary drugs to specified conditions.

Such limitations are frequently arbitrary and most are virtually impossible to comply with. The California Department of Health recognizes the problem and is in the process of eliminating most Code Ones which rely on data (e.g. diagnosis) not readily available to the pharmacist.

Patient cost sharing is another mechanism that has been attempted in controlling utilization. Co-payment was tried in

California for two years but has been discarded. If co-payments are high enough to reduce utilization, they are likely too high for the income levels of most Medicaid patients. If co-pay is utilized, there is no effective control unless provider collection is mandated.

The California experience was not favorable and was discontinued when no significant benefit could be demonstrated.

Before concluding, let me say a word or two about audits which, of course, are another form of program control.

Providers, I believe, support legitimate audit procedures when there is reason to believe that a provider is abusing the program. Providers must, however, be given detailed guidelines as to how the audit will be conducted, what specific types of problems or potential abuses will be investigated, and what corresponding action will be taken. Providers who are audited must also be afforded the opportunity to justify their actions and provide any additional documentation prior to the conclusion of an audit.

Organized witch hunts by headline seeking bureaucrats, and we have seen examples of this, are neither creditable to the program or its administrators and will lead to false accusations which government auditors will have to answer to the legislature, the public and the courts.

I appreciate the opportunity of sharing with you my thoughts on the purpose, contents and controls of an effective

Title XIX program. I have intended to offer my comments and suggestions in a constructive manner and I hope they were received that way. I also hope they will be considered objectively. A comprehensive pharmaceutical service benefit is an essential part of health care. It cannot be dismissed if we are truly concerned with designing and administering a system that will overcome present deficiencies and arrive at that optimal level of care that we hear so much about but have done so little to achieve.

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CONFERENCE PAPERS

PRESENTATION OF RANGE DATA AND DISCUSSION OF ITS USE IN ESTABLISHING ESTIMATED ACQUISITION COST (EAC) FOR DRUGS

Charles Spalding, Program Analyst
Office of Pharmaceutical Reimbursements
Medicaid Bureau
Health Care Financing Administration

THE MAXIMUM ALLOWABLE COST (MAC) PROGRAM DATA

Good afternoon. My presentation today is intended to give you an overview of the economic data that we disseminate to the States for use in the Estimated Acquisition Cost (EAC) program and that we use to derive Maximum Allowable Cost (MAC) limits.

The prime source of our data is a company called IMS America. They are the largest drug market auditing firm in America and provide pharmaceutical, hospital supply and prescribing information to many if not most of the major drug firms as well as to market research firms and stock market analysts.

The information that we use is derived from IMS' Drug Store Report data base which I would like to describe for you now.

(Illustration I)

This illustration shows the general system for the Drug Store data base. Each month IMS representatives visit every store in their panel of 1300 to 1400 stores and microfilm every invoice for the previous month. The reels of microfilm are sent to central processing where operators working at cathode ray tube terminals extract certain data from each invoice and type that data into the terminal. This data goes directly onto a computer disk for storage and retrieval.

The operator types the first few letters of the name of a product; let us call it product X. The screen will then show a listing of products having those same first letters. Each item on the list has a code so when the operator sees product X on the list, she types the proper code. All the basic product information--dosage form, strength, package size, company and name are automatically recorded.

(Illustration II)

The product information has been automatically recorded and the operator must now type in the number of units purchased and the total price.

A number of discounts are not captured such as end of year discounts, prompt payment, total order discounts and any other discounts, rebates or free goods which do not appear in the line extention.

In addition to the microfilming process described above, some of the larger stores in the panel supply information on magnetic tape. This system is very efficient but sometimes internal pricing is used and that could lead to some uncharacteristic prices. I will say more about this shortly.

(Illustration III)

This illustration shows the IMS classification scheme. There are three store type categories: chain, independent, and discount houses with sub-categories of size for chains and independents.

(Illustration IV)

This illustration shows that from the universe of 55,000 stores IMS chooses 1300 to 1400 stores as their panel. Since the main goal of IMS' previous work was to project total dollar volume, their panel was weighted in favor of higher volume outlets. Our purpose was to give an accurate picture of prices so we asked that as balanced a sample as possible be created for our use. Since we could not add smaller stores, we deleted larger stores, primarily chains, to attempt to create a balanced sampling rate of 2 percent.

As I mentioned before, some of the larger stores were supplying data on magnetic tape and that some internal prices (rather than actual invoice prices) were being passed through. In the process of reducing the number of large stores in the IMS panel, stores using magnetic tape were deleted to the greatest extent possible, so that we now have such data from 77 stores and they affect only the large chain strata.

(Illustration V)

This illustration shows the number of stores in each of the various strata for both the universe and the HCFA panel. The sampling rates are also included. As you can see, the weakest area from a sampling point of view is in the smallest category of independents. It might be good to emphasize at this point that these categories are based on total sales of all items and therefore are only a rough substitute measure of pharmaceutical sales.

There is no known distribution of the universe of stores based on pharmacy items only. However, IMS audits all invoices of their sample stores and can therefore classify the sample by pharmacy purchases.

(Illustration VI)

As this illustration shows, 23 percent of the stores in the HCFA panel have pharmaceutical purchases of less than $50,000 per year. Further, this illustration shows the broad national coverage of this panel for all stores sizes.

(Illustration VII)

I would now like to describe for you the report formats which IMS provides HCFA. This illustration shows the price distribution for a single package size of a single dosage strength of a product. Frequencies of both units and lines are displayed for each census region and for the Nation. Additionally, there is a column entitled "weighted." Our programs are being modified to give us the capability to apply weights to each strata (store size, ownership, and location) so that we can compensate for any under or over sampling which may occur.

For all the statistics that we receive, this distribution is screened for exceptional data. If any of this data was screened out, an asterisk would appear next to the price. So all data is printed out but only screened data is used in computing the statistics.

(Illustration VIII)

For the last few months we have been receiving additional information on various breakouts. We receive summary information on the measures of central tendency for all stores; chains; small, medium, and large independents; wholesale purchases and direct purchases.

(Illustration IX)

In response to the problems encountered with the single point price data we had been supplying to the states to help set EAC limits, we developed a multi-price format which displays the price distribution in a decile arrangement. The price at (or below) which 10 percent of the purchases were made is shown as is the 20 percent level through the 90 percent level. The mean and standard deviation are also shown. This information appears for the Nation and for each census region. The national array is printed separately and is sent to the States to aid in administering the EAC portion of the program. The current information comes to us monthly and is based on two months of data. I have brought along copies of these various reports if any of you would care to review them. The information we receive covers 300 leading generic entities. For each entity we receive information on the four largest selling dosage form/strength. For each dosage form/strength we receive information on the most frequently purchased package size. Up to ten manufacturers are shown and

additionally an "all other brands" and "summary" line are shown.

Are there any questions?

Illustration I

DATA COLLECTION

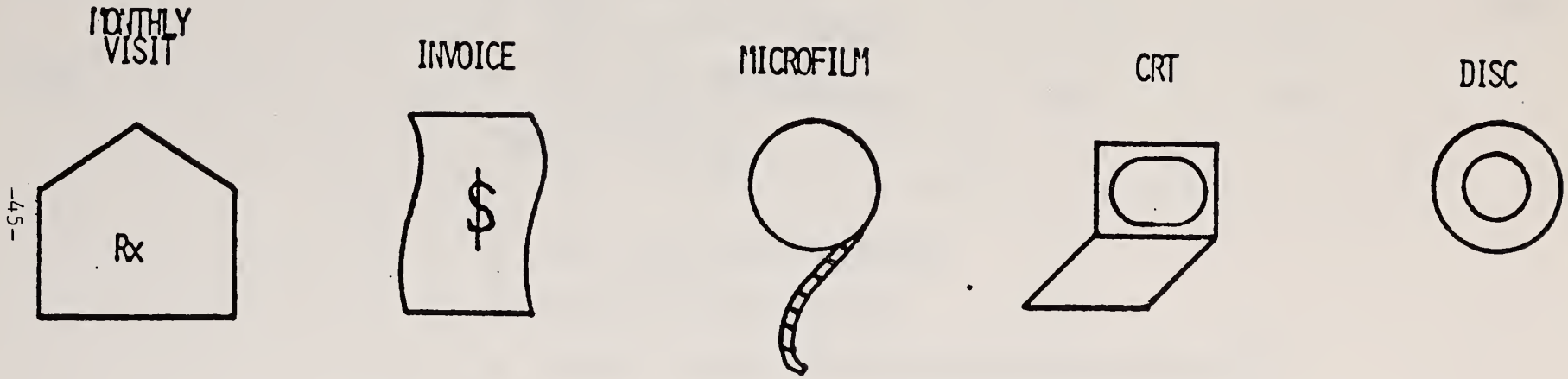


Illustration II

INVOICE INFORMATION

DATA CAPTURED

- PRODUCT INFO (NAME/DOSAGE FORM/STRENGTH/PACKAGE SIZE)
- NUMBER OF UNITS PURCHASED
- TOTAL PRICE (LINE EXTENSION)

DATA NOT CAPTURED

- END OF YEAR DISCOUNTS
- PROMPT PAYMENT DISCOUNTS
- TOTAL ORDER DISCOUNTS
- ANY DISCOUNT OR REBATE WHICH IS NOT INCLUDED IN THE LINE EXTENSION

Illustration III

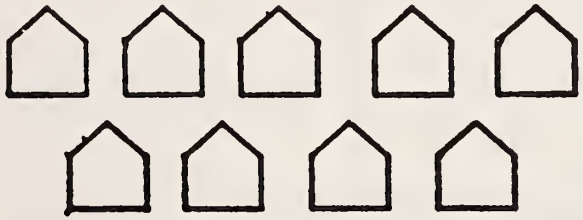
STRATIFICATION

TYPE →	CHAIN		INDEPENDENT			DISCOUNT HOUSES
SIZE →	4 - 10 UNITS	> 10 UNITS	< 100 K VOLUME	100-300 K VOLUME	> 300 K VOLUME	

Illustration IV

SAMPLE

UNIVERSE OF 55,000 DRUG STORES



IMS SAMPLE PANEL OF 1,300-1,400 STORES

SSA PANEL OF 1,000 STORES

1977 DESIGN - STORES

Store Type and Sales Size	1977 Universe	%	HCFA Sample	HCFA Sampling Rate
Independent	37,761	76.8%	768	2.0%
Under $100,000	8,637	17.6	81	0.9
$100-299,999	20,053	40.8	410	2.0
$300,000 and over	9,071	18.4	277	3.1
Chain	10,048	20.4	204	2.0
4-10 Stores	1,815	3.7	37	2.0
11 and more stores	8,233	16.7	167	2.0
Discount Houses with Rx Department	1,381	2.8	28	2.0
TOTAL	49,190		1,000	2.0%

Illustration V

HCFA PANEL

NO. OF PHARMACIES BY CENSUS REGION

ANNUAL Rx-DRUG PURCHASE VOLUME	Nation	Region 1	2	3	4	5	6	7	8	9
Under $50,000	230	23	60	25	29	13	21	21	12	26
$50,000-99,999	405	29	58	65	76	35	33	43	16	50
$100,000 & Over	365	12	46	58	84	24	37	39	18	47
TOTAL	1,000	64	164	148	189	72	91	103	46	123

Illustration VI

DREW600-76-0064
SS40190-40

USORUG JUNE 1977

08/12/77

REGIONAL FREQUENCY DISTRIBUTION

FLAVIL,TABS,50MG,100 — AMITRIPTYLINE HCL — PAGE 828

NSCD

0006-0102-68 (0021-25435014)

	NATION		WEIGHTED		REG.1		REG.2		REG.3		REG.4		REG.5		REG.6		REG.7		REG.8		REG.9	
	U/L		U/L		U/L		U/L		U/L		U/L		U/L		U/L		U/L		U/L		U/L	
16.39	1	1	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
16.54	4	4	4	4	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0
16.68	15	11	15	11	5	4	9	6	1	1	0	0	0	0	0	0	0	0	0	0	0	0
16.79	3	1	3	1	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0
16.91	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16.93	2	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
16.94	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17.05	2	2	2	2	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0
17.23	6	5	6	5	6	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17.50	1	1	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
17.56	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
17.58	22	19	22	19	2	2	0	0	20	17	0	0	0	0	0	0	0	0	0	0	0	0
17.60	2	2	2	2	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0
17.68	10	10	10	10	0	0	0	0	8	8	2	2	0	0	0	0	0	0	0	0	0	0
17.69	9	7	9	7	2	2	0	0	0	0	2	2	0	0	5	3	0	0	0	0	0	0
17.90	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
17.92	3	3	3	3	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0
17.93	1	1	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
18.03	10	9	10	9	0	0	0	0	0	0	10	9	0	0	0	0	0	0	0	0	0	0
18.04	56	52	56	52	0	0	0	0	12	11	35	32	3	3	0	0	2	2	0	0	4	4
18.05	1	1	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
18.22	2	1	2	1	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0
18.33	9	8	9	8	0	0	0	0	4	3	5	5	0	0	0	0	0	0	0	0	0	0
18.35	1	1	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
18.44	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
18.49	1	1	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
18.50	2	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
18.64	12	10	12	10	0	0	12	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.70	1	1	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
18.78	4	4	4	4	1	1	0	0	0	0	1	1	0	0	0	0	2	2	0	0	0	0
18.79	215	190	215	190	15	14	34	31	68	56	12	11	20	17	14	13	20	18	17	17	15	13
18.80	5	5	5	5	0	0	3	3	0	0	1	1	1	1	0	0	0	0	0	0	0	0
18.81	2	2	2	2	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0
18.82	2	1	2	1	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.94	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
19.44	1	1	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
19.78	5	4	5	4	0	0	0	0	1	1	0	0	2	2	2	1	0	0	0	0	0	0
20.83	2	2	2	2	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
ALL STORES																						
TOTAL U/L	1846	1204	1846	1204	78	59	239	174	277	185	411	276	111	85	197	114	198	91	75	66	260	154
DOLLARS	29,892.88		-*-		1306.91		3934.42		4659.29		6442.87		1813.86		3137.76		3203.77		1235.64		4153.36	
MODE	15.82		15.82		15.82		15.82		15.82		15.82		15.82		15.82		15.82		15.82		15.82	
MEDIAN	15.82		15.82		16.68		15.82		17.58		15.82		15.82		15.82		15.82		15.82		15.82	
MEAN	16.42		16.42		16.95		16.58		[illegible]		15.93		16.45		16.07		16.53		16.55		16.12	
STD.DEVIATION	1.51		1.51		1.24		1.32		1.45		1.67		1.77		1.50		1.24		1.33		1.17	

DHEW600-76-0064
SSAD190-40
USDRUG JUNE 1977
08/12/77

REGIONAL FREQUENCY DISTRIBUTION

ELAVIL.TABS.50MG,100 — AMITRIPTYLINE HCL — PAGE 829

MSCD
0006-0102-68 (0021-254350[4])

	NATION		WEIGHTED		REG.1		REG.2		REG.3		REG.4		REG.5		REG.6		REG.7		REG.8		REG.9	
	U/L		U/L		U/L		U/L		U/L		U/L		U/L		U/L		U/L		U/L		U/L	
CHAINS																						
TOTAL U/L	666	365	666	365	11	10	75	47	102	67	189	130	25	17	59	25	106	26	3	2	94	63
DOLLARS	10,457.71		-*-		179.20		1201.34		1702.62		2818.20		395.47		914.02		1682.86		47.46		1516.54	
MODE	15.82		15.82		16.28		15.82		15.82		15.03		12.80		15.82		15.82		15.82		15.82	
MEDIAN	15.82		15.82		16.28		15.82		15.82		15.03		16.08		15.82		15.82		15.82		15.82	
MEAN	15.90		15.90		16.25		16.02		17.14		15.22		15.96		15.61		16.06		15.82		16.41	
STD.DEVIATION	1.69		1.69		.67		.74		1.45		1.88		2.38		1.80		.83		.06		1.25	
IND. SMALL																						
TOTAL U/L	147	126	147	126	11	10	28	26	20	19	12	9	9	8	20	14	9	8	11	11	27	21
DOLLARS	2,456.13		-*-		182.14		473.54		353.85		192.02		152.97		323.87		144.60		197.78		435.35	
MODE	15.82		15.82		15.82		15.82		18.79		15.82		15.82		15.82		15.82		18.79		15.82	
MEDIAN	15.82		15.82		15.82		15.82		18.04		15.82		15.82		15.82		15.82		18.79		15.82	
MEAN	16.83		16.83		16.63		16.99		17.65		16.06		17.14		16.34		16.09		17.98		16.21	
STD.DEVIATION	1.35		1.35		1.21		1.46		1.25		1.05		1.47		1.08		.78		1.38		.93	
IND. MEDIUM																						
TOTAL U/L	818	390	818	390	46	30	81	60	71	59	70	51	42	38	58	40	43	38	13	12	94	62
DOLLARS	8,545.58		-*-		766.13		1345.56		1223.67		1146.49		709.46		956.56		706.99		212.28		1682.69	
MODE	15.82		15.82		15.82		15.82		15.82		15.82		15.82		15.82		15.82		15.82		15.82	
MEDIAN	15.82		15.82		17.23		15.82		17.58		15.82		15.82		15.82		15.82		15.82		15.82	
MEAN	16.66		16.66		17.03		16.76		17.28		16.62		16.92		16.61		16.47		16.34		15.21	
STD.DEVIATION	1.35		1.35		1.19		1.38		1.24		1.26		1.53		1.26		1.21		1.14		1.29	
IND. LARGE																						
TOTAL U/L	517	343	517	343	10	9	55	41	84	60	140	86	35	22	60	35	40	21	49	41	45	28
DOLLARS	8,433.46		-*-		179.44		913.98		1379.39		2286.16		555.96		945.31		671.32		778.12		723.78	
MODE	15.82		15.82		18.79		15.82		15.82		15.82		15.82		15.82		18.79		15.82		15.82	
MEDIAN	15.82		15.82		18.78		15.82		15.79		15.82		15.82		15.82		16.06		15.82		15.82	
MEAN	16.52		16.52		17.85		16.73		16.97		16.57		15.78		15.66		17.36		16.27		16.09	
STD.DEVIATION	1.43		1.43		1.46		1.48		1.69		1.08		1.50		1.49		1.47		1.16		.75	
DIRECT SOURCE																						
TOTAL U/L	1128	614	1128	614	28	14	138	88	121	62	262	153	67	48	158	84	165	62	19	15	170	88
DOLLARS	17,565.42		-*-		442.96		2183.43		1913.92		3929.32		1038.80		2457.26		2610.85		300.58		2638.30	
MODE	15.82		15.82		15.82		15.82		15.82		15.82		15.82		15.82		15.82		15.82		15.82	
MEDIAN	15.82		15.82		15.82		15.82		15.82		15.82		15.82		15.82		15.82		15.82		15.82	
MEAN	15.55		15.55		15.82		15.81		15.81		15.02		15.50		15.53		18.82		15.82		15.81	
STD.DEVIATION	.83		.83		.04		.08		.02		1.18		.93		1.13		.06		.06		.03	
WHOLESALE SOURCE																						
TOTAL U/L	718	590	718	590	50	45	101	86	156	123	149	123	44	37	39	30	33	29	56	51	90	66
DOLLARS	12,327.46		-*-		863.95		1750.99		2745.37		2513.55		775.06		680.50		592.92		935.06		1470.06	
MODE	18.79		18.79		18.79		18.79		18.79		18.04		18.79		18.79		18.79		15.82		15.82	
MEDIAN	18.03		18.03		17.23		18.64		18.33		18.03		18.79		17.69		18.79		15.82		16.01	
MEAN	17.32		17.32		17.30		17.36		17.99		17.06		17.69		17.58		18.05		16.77		15.56	
STD.DEVIATION	1.53		1.53		1.22		1.52		1.33		1.49		1.86		1.37		1.22		1.44		1.70	

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

PRICE INFORMATION FOR DRUG PRODUCTS---INVOICE LEVEL PRICES---DATA FOR MAY 1977 AND JUNE 1977 ..... PAGE 9

AMITRIPTYLINE HCL

PRODUCT/MANUFACTURER DESCRIPTION	CENSUS REGION	10	20	30	40	50	60	70	80	90	MEAN	STANDARD DEVIATION
						PERCENTILES						
TABS,25MG,100												
ELAVIL	NATIONAL	0.0846	0.0869	0.0890	0.0890	0.0890	0.0905	0.1015	0.1056	0.1058	.0935	.0108
MSD	REGION 1	0.0846	0.0862	0.0890	0.0906	0.0942	0.0967	0.1016	0.1058	0.1058	.0955	.0077
0006-0045-68	REGION 2	0.0890	0.0890	0.0890	0.0890	0.0950	0.0942	0.1049	0.1058	0.1058	.0956	.0082
	REGION 3	0.0846	0.0846	0.0846	0.0846	0.0868	0.0890	0.1032	0.1056	0.1058	.0924	.0095
	REGION 4	0.0846	0.0846	0.0890	0.0890	0.0890	0.0900	0.0990	0.1015	0.1032	.0923	.0150
	*REGION 5	0.0890	0.0890	0.0890	0.0890	0.1002	0.1058	0.1058	0.1058	0.1058	.0973	.0092
	REGION 6	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0901	0.0944	0.1058	.0923	.0068
	REGION 7	0.0890	0.0890	0.0890	0.0890	0.0905	0.1015	0.1057	0.1058	0.1058	.0963	.0078
	*REGION 8	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0967	0.1058	0.1058	.0928	.0137
	REGION 9	0.0846	0.0875	0.0890	0.0890	0.0890	0.0890	0.0989	0.1016	0.1038	.0911	.0108
	WEIGHTED NATIONAL	0.0846	0.0869	0.0890	0.0890	0.0890	0.0905	0.1015	0.1058	0.1058	.0935	.0108
ENDEP	NATIONAL	0.0768	0.0800	0.0800	0.0894	0.0912	0.0912	0.0912	0.0950	0.0950	.0875	.0092
ROCHE	**REGION 2	0.0790	0.0800	0.0800	0.0800	0.0800	0.0800	0.0894	0.0912	0.0950	.0843	.0064
0004-0163-01	*REGION 3	0.0800	0.0894	0.0912	0.0912	0.0912	0.0912	0.0950	0.0950	0.0950	.0911	.0046
	**REGION 4	0.0800	0.0800	0.0812	0.0912	0.0912	0.0912	0.0912	0.0950	0.0950	.0901	.0068
	**REGION 5	0.0768	0.0800	0.0800	0.0894	0.0912	0.0912	0.0912	0.0950	0.0950	.0856	.0144
	**REGION 6	0.0760	0.0800	0.0800	0.0800	0.0800	0.0912	0.0912	0.0912	0.0950	.0851	.0073
	**REGION 7	0.0894	0.0912	0.0912	0.0912	0.0950	0.0950	0.0950	0.0950	0.0950	.0913	.0063
	**REGION 9	0.0760	0.0760	0.0760	0.0768	0.0775	0.0800	0.0912	0.0912	0.0912	.0850	.0145
	WEIGHTED NATIONAL	0.0768	0.0800	0.0800	0.0894	0.0912	0.0912	0.0912	0.0950	0.0950	.0875	.0092
SUMMARY	NATIONAL	0.0846	0.0846	0.0890	0.0890	0.0890	0.0912	0.0990	0.1044	0.1058	.0927	.0112
	REGION 1	0.0872	0.0880	0.0890	0.0891	0.0914	0.0942	0.0990	0.1058	0.1058	.0947	.0080
	REGION 2	0.0861	0.0890	0.0890	0.0890	0.0890	0.0942	0.1049	0.1058	0.1058	.0944	.0092
	REGION 3	0.0846	0.0846	0.0846	0.0846	0.0890	0.0903	0.0995	0.1056	0.1058	.0919	.0099
	REGION 4	0.0846	0.0846	0.0890	0.0890	0.0890	0.0904	0.0950	0.1015	0.1016	.0920	.0145
	REGION 5	0.0890	0.0890	0.0890	0.0890	0.0945	0.1002	0.1058	0.1056	0.1058	.0952	.0111
	REGION 6	0.0800	0.0890	0.0890	0.0890	0.0890	0.0890	0.0901	0.0912	0.1058	.0903	.0089
	REGION 7	0.0890	0.0890	0.0890	0.0890	0.0912	0.0950	0.1015	0.1057	0.1058	.0955	.0081
	*REGION 8	0.0846	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0950	0.1058	.0918	.0136
	REGION 9	0.0768	0.0846	0.0890	0.0890	0.0890	0.0890	0.0912	0.1016	0.1038	.0900	.0120
	WEIGHTED NATIONAL	0.0846	0.0846	0.0890	0.0890	0.0890	0.0912	0.0990	0.1044	0.1058	.0927	.0112
TABS,50MG,100												
ELAVIL	NATIONAL	0.1503	0.1562	0.1562	0.1562	0.1562	0.1582	0.1668	0.1804	0.1879	.1643	.0152
MSD	REGION 1	0.1562	0.1562	0.1562	0.1628	0.1668	0.1694	0.1758	0.1879	0.1879	.1696	.0124
0006-0162-68	REGION 2	0.1562	0.1582	0.1582	0.1582	0.1582	0.1582	0.1657	0.1864	0.1879	.1658	.0132
	REGION 3	0.1562	0.1582	0.1582	0.1601	0.1758	0.1804	0.1879	0.1879	0.1879	.1715	.0140

UNI C8C877 SSA018-40 (*20-50 OBSERVATIONS **FEWER THAN 20 OBSERVATIONS ***FEWER THAN 10 OBSERVATIONS)

PANEL DISCUSSION ON USE OF RANGE DATA IN STATE PROGRAMS

George Levey
Director, Medicaid Pharmacy Program
Massachusetts Department of Public Welfare

DISCUSSION OF POSSIBLE USES OF RANGE DATA IN STATE PROGRAMS

History

The two primary components of the retail prescription price, drug cost and dispensing fee, were derived through a process of "negotiation" between program administration and provider group (pharmacy director and State pharmacy association). As an example, in Massachusetts the fee has evolved from a low of $1.75 to the current $2.10 over an eight year period; drug cost was based on AWP (average wholesale price), which was a realistic catalogue price in 1970, but which is now an arbitrary price, based on the Red Book.

Current

In reality, the retail prescription price has three components: drug cost, dispensing expense and net profit. The Federal requirement to establish an EAC in States' programs was an abnormal intervention into what had become a stable condition over a significant period of time. The Federal regulations tore out drug cost from the 3-component system and then dumped the responsibility onto the State to re-work or re-patch a new retail prescription price. The Feds lost sight of the dynamics which had been, and still are, at work in the process which determines reimbursement rates. It is true that the Feds did provide a decile drug profile which could

assist in establishing an EAC. It appears that this system is useful only as a reference, since not one State admitted to having adopted it in any way.

Recommendation

Well over half of the Nation's pharmacies are small, independent businesses, and the proposed EAC would be a disadvantage to them. At the same time, the large independent or discount pharmacy would benefit from the EAC concept in some cases in an extraordinary way, depending on their purchase power. This imbalance is unacceptable and, in recognizing this, some States are looking to a variable fee which would be based on either prescription volume or drug purchasing power.

Why have we been thrown into this convoluted process, a process which looks to variable fees for the same professional service or to EAC pricing which is not a real price but an average price? The answer lies in the frustration of both State and Federal lawmakers and regulators to deal with the high cost of drugs. In no other free world society do drugs cost as much. Other governments have been able to free themselves from the influence of the drug industry, and, in so doing, have developed rational drug programs and price structures which are bearable. Contrary to the sharp words of industry lobbyists about a free enterprise system, a real monopoly has been created by all major drug manufacturers to suit their own needs. Anti-substitution laws which may have started out as

well-meaning devices to eliminate inferior drugs, have virtually eliminated price competition. Marketing methods combined with high-powered lobbying on both the State and Federal levels have perpetuated anti-substitution laws.

EAC and its slow-thinking brother MAC have created a national turmoil for all State Medicaid administrators - a turmoil which will continue to confuse the issues and therefore play into the hands of the drug companies. Pharmacy provider groups will gain strength during this period of confusion and the "creative tension" as defined by Keith Weikel will disappear and leave the provider with the upper hand. The result will be more expensive programs with less control.

The government has no alternative but to "federalize" the drug program as soon as possible. A national drug formulary with a fixed range of prices must be established. Drug companies who refuse to drop their prices will not be included in the formulary. A fixed list of interchangeable drugs must be established. The government should require an official welfare prescription which can be used as an audit trail for determining validity of the drug order and compliance with regulations. Those drugs which are neither cost-effective nor therapeutically valid should be eliminated.

The Institute for Medicaid Management has a challenge and a responsibility to bring the State and Federal administrators together in a meaningful dialogue so that all of our problems can

be discussed and solved together. Any future meetings should be held exclusively between program administrators, and all representatives from industry should be excluded, both fiscal intermediaries and drug manufacturers. Nothing worthwhile is to be gained by consultation or by consorting with them. On the contrary, their intervention into our discussions and their need to create business was an unfortunate distraction in our precious time. I would agree that other events should be set aside for fiscal intermediaries to make presentations for our benefit. These presentations could be evaluated by the Institute and reports could be sent to all States. I have found little use for any information provided by drug manufacturers; most is self-serving, and their primary job is to keep a watchful eye on Medicaid program changes.

Norbert G. Lassahn
Chief, Invoice Processing
Maryland Medical Assistance Operations

MARYLAND'S EXPERIENCE WITH EAC

Maryland is in rather a unique position in that the Medical Assistance Operations Administration implemented an automated drug payment system on September 1, 1976, just 4 days after the Federal MAC-EAC regulations became effective.

Prior to that time, the processinng of all prescription invoices, some 3.5 million per year, was accomplished manually by 12 fiscal aides and clerks. There was time enough to price check only 1 out of every 20 prescriptions. In an attempt to speed up this process, and at the same time price check each and every prescription, an automated system was developed.

During the six months prior to its implementation, the same period that the MAC and EAC regulations were being attacked so vigorously, a system of determining appropriate EACs was developed.

In Maryland, we use as reference all the information sources available: The Blue Book, Red Book, Drug Topics Executive Drug Pricing Service, manufacturers' catalogs, wholesaler catalogs, and a wholesaler generated weekly computer print-out of all NDC price changes, additions, and deletions, and finally, a bi-monthly wholesaler generated computer print-out of all NDC with prevailing prices.

Some commonly used drugs are price restricted based on package size and source of supply, either direct purchase, or

purchase through a wholesaler.

The EACs developed by review of all information available, have been used since the system's implementation. The EACs are updated as often as necessary - we try to keep current on all changes.

When HEW published its first listing of range price data in April, 1977, some program personnel suggested that one of the percentile ranges be chosen as our price basis.

All of us in the Operations Administration, however, felt that we had developed an expertise in this area, and decided that a comparison of our prices and the HEW data was appropriate.

That comparison follows:

In July, 1977, the Medical Assistance Program received from the Department of Health, Education, and Welfare (HEW), a new percentile listing of the invoice level prices for the top 300 different drug chemical entities. The old format was a single price listing per drug. The single price represented the Federal Estimated Acquisition Cost (EAC). This list, in new format, represents a complete revision of invoice level prices distributed on April 8, 1977. Prices were based on a survey of all invoices for prescribed drugs received by 1,000 pharmacies throughout the country. This percentile listing represents the number of pharmacies participating that were able to purchase a particular drug at the listed price or less. The new listing is only a guide; States may set their own EACs.

An initial survey showed that the program was 5% higher across the board than HEW. This survey, based on the old HEW format, used the listing published in April, 1977 using last quarter of calendar year 1976 prices as basis for comparison.

A second comparison was made between the Maryland Medical Assistance Program's drug prices and those of HEW for February-March, 1977. The basis for this comparison was the newly formatted HEW listing of percentile prices described above. It consisted of selecting 100 trade name drugs and comparing the Maryland EAC against HEW's 50, 70, and 80 percentile, the price at or below which a certain percent of the purchases have been made throughout the United States of America.

The results show that 50% of Maryland's EAC prices fall at or below the 60 percentile of HEW. The first 55 drugs compared were those that were restricted in Maryland by source and package size. This group nad 62% of the prices at or below the HEW 60 percentile; in fact, many were below.

In some instances where Maryland's EAC is higher than HEW's, the package size was a factor. The larger the package size, the cheaper the product. Some of Maryland's drug package sizes are smaller, therefore, creating a higher price. Also due to extensive paperwork required for recordkeeping, wholesalers in Maryland have a policy of charging higher prices for Drug Enforcement Act (DEA) scheduled drugs.

Following are comments on the survey:

The attached report details the results of a survey made by Mr. Fine and his conclusions and recommendations concerning the application of EACs in our Drug Reference File.

Mr. Fine has recommended our EACs be brought more into agreement with the Federal EACs by 1) adopting the package size as used by HEW as the basis for our EACs, and 2) by enlarging the scope of the quantity and source of restricted drugs which in the Maryland Program now numbers approximately 50 entities.

I am in agreement with these two recommendations. The third "recommendation and considerations" listed in the report is the subject of the following comments. It is a fact well known by Program personnel that most drug wholesalers in Maryland and some of the manufacturers supplying pharmacies directly extend extra percent discounts at the end of purchase periods based on the dollar volume of purchases made. These percentage discounts vary from store to store depending on dollar volume of purchases made, brands of drugs purchased, and whether the particular wholesaler is the prime supplier of the pharmacy. No generalization of amount of discount can be made. These extra discounts are not reflected in the information we receive from wholesalers or manufacturers and result in our EACs on the reference file being higher than HEW's published EACs.

It has been under consideration that in those instances when the State's EAC is higher than the Federal EAC that we adopt the

80th or 90th percentile of HEW's list. In addition to Mr. Fine's considerations concerning such an action, it should be remembered that the Program is not now getting the benefit from a true acquisition cost.

However, assuming that the Program adopted the 80th or 90th percentile level of the HEW list, inasmuch as HEW's list includes only 300 drug entities, the great majority of the 6,000 drug entities now on our reference file would not be addressed.

Although the number of drugs involved is relatively small, an action such as this would result in a tremendous increase in inquiries for supplemental payments which the Medical Assistance Operations Administration would find very difficult to handle.

In conclusion, although I would prefer that the Program reimburse true acquisition cost in all cases, I cannot recommend adopting any set HEW percentile level as the allowed cost in our reference bank. I seriously doubt that there would be any appreciable benefit accruing to the Program to offset the cost and trouble involved in implementation, maintenance, and resolution of requests for supplementary payments.

1. Recommendation:

In the first situation where the difference in package size accounts for a difference in price, this can be corrected by adopting HEW's package when HEW's is larger than the one we have.

Consideration:

The program would have to notify the pharmacy providers of any changes that have been made. Without notification, the providers will assume that the average wholesale price and smallest package size will be used for their reimbursement. Therefore, this will create an increase in supplemental payment inquiries with which the Pharmacy Program has had its problems since the inception of the Automated Drug Pricing System.

2. Recommendation:

In many instances, the package sizes on which HEW and Program prices are based are smaller than those predominantly purchased by pharmacies in Maryland. This situation which currently results in higher prices on the Drug Reference File could be corrected by enlarging the list of quantity and source restricted drugs which now numbers approximately 50 entities.

Consideration:

It is a well-known fact that the profession of pharmacy not only deals with professional service, but also the buying and dispensing of medication. The providers acquire their drugs on trade discounts as in any other business. It is in the best interest of the program to try to cut into this hidden profit when

possible. The providers feel that this financial edge is needed in doing business (stock investment, increasing cost of containers for which they feel the Program does not reimburse an adequate fee, etc.). A median has to be met. The Program's restricted list seems to be able to accomplish this.

3. Recommendation:

In other instances where package sizes in our Drug Reference File do not play a part in the price differential (the HEW prices are less than the Maryland EAC), it may be suggested that we reduce our price to perhaps the 80th or 90th percentile of HEW's list. This has several drawbacks.

Considerations:

A. The HEW drug price listing will be published monthly with a two month lag in publication date. In effect, if we adopted these prices, our prices would not be current. Then again, HEW's performance in adhering to their intentions is not the best. This would result in our relying on HEW's promises and intentions which, in fact, they may not be able to deliver.

B. In addition to a restricted list, and because the program would still have to use EAC from local wholesalers for those drugs not included in HEW's list, the addition of a third list, HEW's bi-monthly publication, would place another burden upon the Program to inform the pharmacy providers of a supplementary schedule of drug prices. This will be time-consuming.

C. This action will only discourage the pharmacy providers, to put it mildly. Within the last year and a half, the program has demanded more from them than any other professional group. They have accepted the restricted list. Moreover, any additions to that list would also be accepted because they would pertain to package sizes and sources that are already predominantly in use. The addition of the HEW percentile may be difficult to explain. It is important for the Program to have a good working relationship with providers or the recipients may suffer.

In consideration of these facts and available solutions, in most problem areas, it is recommended that the Program not adopt HEW's published list of percentile prices, but rather retain the system we now have with the corrections listed above in one and two.

PANEL DISCUSSION ON IMPACT OF INAPPROPRIATE AMBULATORY DRUG THERAPY ON HOSPITALIZATION

Sharon Marcum
Administrator, Utilization Review Section
Arkansas Division of Social Services

A STUDY OF THE IMPACT OF AMBULATORY DRUG THERAPY ON HOSPITALIZATION

Arkansas Program Background

I. OVERVIEW OF DRUG PROGRAM

The Arkansas Medicaid Prescription Drug Program which began in September, 1973, originally had unlimited benefits. On January 1, 1976, the State imposed a three prescription per month limit per eligible as a means of a cost containment measure due to budget cutbacks. In addition, the Arkansas MAC was also implemented at this time as was a 30-day maximum supply.

Statistics reflect that the overall average number of prescriptions per eligible was .92 when unlimited prescriptions were allowable, and dropped to .72 when the three prescriptions per eligible went into effect.

During the time of study 650 pharmacies, representing 95 percent of all Arkansas pharmacists, were participating in the Medicaid Program. A 50 cent co-payment is collected by the pharmacist on each prescription (except for exempted family planning drugs).

During the time of study, PAID Prescriptions administered a prepaid program. Since July, 1977, Arkansas Blue Cross/Blue Shield has administered the program as a fiscal agent.

Covered Drugs

This prescription program covers:

1. Drugs which bear the Federal Legend, "Caution - Federal Law Prohibits Dispensing without a Prescription."
2. Insulin, insulin syringes, insulin needles.
3. Rabies vaccine.
4. Compounded prescriptions containing at least one Legend item in a therapeutic quantity in the dose prescribed.
5. The following over-the-counter items when dispensed pursuant to a prescription from an authorized practitioner:

   Acetaminophen

   Antacids

   Calcium Lactate

   Contraceptive Foams and Jellies

   Dicalcium Phosphate

   Ferrous Fumarate

   Ferrous Sulfate

   Ferrous Gluconate

   Insulin Syringes and Needles

   Meclizine Hydrochloride

   Pediatric Vitamin Drops for children up to three years of age

   Sodium Salicylate (Enteric Coated)

Items Not Covered

1. All appetite suppressants and amphetamines are not covered.

2. Over-the-counter items not included above, medical supplies and nursing home floor stock such as needles, syringes, catheters, and I.V. sets are NOT covered. Also excluded are investigational drugs, I.V. solutions, irrigating solutions, oxygen, vaccines, routine immunizing agents, blood and plasma, blood derivatives, and over-the-counter items to which a Legend item has been added in less than therapeutic quantities.

II. OVERVIEW OF HOSPITAL PROGRAM

During the period of this study, the Arkansas Medicaid Program provided the following hospital services:

Physician Services

1. 18 visits a calendar year in a physician's office, patient's home or nursing home.
2. Surgery is unlimited providing services are medically necessary and not procedures which require prior authorization. Assistant surgeon fees and required anesthetics administered by an anesthesiologist are compensable. A list of surgical procedures which are considered "non-allowable" is available to providers and other interested parties. A list of procedures which require prior authorization is also available. Physicians may request prior authorization by submitting a written request to the Utilization Review Section.

3. Medical Services associated with 26 days inpatient hospital care in a calendar year.

4. Emergency room services associated with 12 emergency room visits in a calendar year.

5. Part B Medicare deductible and co-insurance will be paid by Medicaid if the recipient is eligible on assigned Medicare claims. Medicaid benefit limits do not apply for Medicare allowable services.

Hospital Services

1. 26 days hospitalization in a calendar year.

2. 12 emergency room visits in a calendar year.

3. Supplemental Medical Care Program--The University of Arkansas Medical Center provides unlimited inpatient and outpatient care.

4. Medicaid pays the deductible and co-insurance on charges allowed by Medicare for persons eligible for Part A Medicare, and Part B Medicare within the 26 days of inpatient hospitalization limit per year.

III. ARKANSAS MEDICAID DRUG/HOSPITAL UTILIZATION

January - June, 1976

	DRUG	HOSPITAL
JANUARY		
Dollars:	1,198,353	1,607,977
Recipients:	71,805	6,068
FEBRUARY		
Dollars:	929,000	1,494,070
Recipients:	66,842	4,909

January - June, 1976 (Continued)

	DRUG	HOSPITAL
MARCH		
Dollars:	1,286,666	1,535,151
Recipients:	88,421	7,512
APRIL		
Dollars:	1,266,069	2,478,854
Recipients:	88,421	7,512
MAY		
Dollars:	1,152,723	1,533,298
Recipients:	82,803	6,682
JUNE		
Dollars:	1,084,029	2,229,246
Recipients:	77,894	7,523

IV. HOSPITAL INDIVIDUAL STUDY

Urban Non-Teaching

This 540 bed Acute General Hospital is located in Arkansas' second largest city. This city has a population of approximately 60,000, and the area's major employers are light industry and various kinds of commerce. The geography is Ozark hills and mountains in the northwest corner of the State. The per diem for the hospital was $107.00 at the time of the study, and this institution became PSRO certified June 1, 1976.

The number of Medicaid eligibles in this county is 2,705, with a total county population of 79,237. This means 4.7 percent of the general population are Medicaid recipients. The region that this hospital serves has an average percentage of medical eligibles of 6.7 percent. Since this area consists mostly of small communities, this hospital serves a several county area.

Urban Teaching Hospital

This is a 400 bed State-supported teaching hospital that is located in the city of Little Rock which is the capitol of Arkansas, and is located in the center of the State. The population of the greater Little Rock area is in excess of 250,000, making it the largest city in Arkansas.

It has supported the low income patients' medical needs for many years. While the county has a Medicaid eligible percentage of 9.7 percent, many of its 900 average admissions per month are from the rural areas of the State. A high percentage of these rural patients present unusual illnesses that are referred to the institution. The per diem rate at the time of the study was $180.00. This hospital became a PSRO certified hospital in January, 1977. It also is involved in the "Supplemental Medical Care Program" of Medicaid which ensures no loss of reimbursement due to program limitations.

Rural Hospital

This 128 bed General Hospital is located in East Arkansas in a city which has a population of less than 25,000. The major occupation in the area is agriculture, since it is located in the delta region of the State. The city is a short distance from Memphis, Tennessee and a good many of the higher income residents in the area seek medical services in that city. The per diem cost at the time of the study was $90.00 and there was an average Medicaid admission rate of 400 per month. This institution became PSRO certified August 1, 1976.

The Medicaid eligibles in this county are 10,096 or 25.2 percent of the county's population. This county has the highest percentage of eligibles in the State. The county's percentage of minorities is 72.5 and the region's is 39.3 percent.

V. DRUG UTILIZATION REVIEW PROCESS

A selected group of local practicing health professionals review patterns of drug utilization in the program (in which they participate), establish parameters of current practice based on computer reports, determine variances from accepted local standards which should be researched, and from this study prepare guidelines of proper drug utilization.

The four local practicing pharmacists are assisted by a local practicing physician backed up by administrative support. The Committee members study individual patient drug profiles which are automatically furnished by the computer according to select criteria. They determine if there are cases of possible abuses which may be patient, physician, or pharmacist oriented. If abuse is suspected, letters challenging the unusual practice are sent to the physicians and pharmacists involved.

A drug monitoring program is used by the Committee to detect unusual patterns of utilization. All drugs dispensed in the program are recorded according to 99 therapeutic categories and by individual drug for each pharmacy, physician, and patient on a bi-monthly basis for the State of Arkansas.

These profiles of drug utilization for each therapeutic class are a valuable measurement of drug use and an indicator of possible inappropriate prescribing, dispensing, and drug taking.

Reasons For Generation of Patient Profiles

CODE	EXPLANATION
C	The patient has four or more claims in the time period considered.
$	The total amount billed for claims for the patient within the time period was equal to or greater than twenty-five dollars.
P	Two or more pharmacies submitted claims for this patient within the time period.
M	There were claims with three or more different prescribers for this patient within the time period.
T	The patient had two or more claims for drugs in the same therapeutic class within the time period.
S	The patient had two claims with the same drug code and date of service from different pharmacies. The therapeutic class of the drug will also appear on the profile heading.

Types of Letters

1. Request to provider to increase quantity of drug.
2. Request to prescriber to increase quantity of drug.
3. "Shopper" letter informing providers of possible abuse by patients.
4. "Shopper" letter informing prescribers of possible abuse by patients.
5. Request for information on apparent over-utilization by pharmacies.

Types of Letters (Continued)

6. To inform prescribers of possible over-utilization.
7. To inform pharmacist of possible non-compliance of potassium supplement.
8. To inform prescribers of possible non-compliance of potassium supplement.
9. To inform pharmacists of possible drug interactions.
10. To inform prescribers of possible drug interactions.
11. Sent in cases where form letter does not apply.
12. Sent when patient is taking a number of drugs in the same pharmacological class.
13. Sent when a certain drug shows repeated renewals by the patient, where blood studies are warranted.

PROVIDER AND RECIPIENT PROFILING PANEL

Rod Palmieri
Chief, Drug Utilization Review Unit
California State Department of Health

DRUG UTILIZATION REVIEW

As the single State agency responsible for the administration of California's Title XIX Medicaid program, affectionately called Medi-Cal, the California State Department of Health must insure that the following goals of the Medi-Cal program are achieved.

1. Availability of all medically necessary covered health services to those program beneficiaries who are in need of such services;
2. When health services are rendered, that they are medically necessary and are provided only in the amounts necessary to deal with the patient's illness and not in excess of those amounts; and
3. Needed health care is provided at a reasonable cost to the State.

But you may ask, "What is California's Drug Utilization Review?" It is a two phased approach. It is a review of a provider of pharmaceutical services to determine if the services paid for were necessary, not excessive, of reasonable cost and were in fact provided within program restrictions.

While we feel that the majority of the providers are unquestionably billing the program for services which are medically necessary, we have an obligation to identify and deal with program

abusers. Therefore, we have designed and implemented a surveillance system which will:

1. Identify those providers and beneficiaries who may be misusing the program by the application of criteria based on the peer group norm concept;
2. Verify the presence or absence of misutilization or fraud by conducting on-site reviews; and
3. Take action against providers and beneficiaries who are shown to be abusing the program.

To accomplish the above, we have, as I mentioned previously, a two-phased approach: an audit approach, and a peer review committee approach. Let me first discuss the Pharmacy Peer Review Committees.

We have throughout California about 33 local, active Pharmacy Peer Review Committees. They are responsible for reviewing and evaluating the practices of their peers. They do their work independently of the audit function, even though information is exchanged as needed. Two of the main functions of these Peer Review Committees, whose members are selected by the local pharmaceutical associations, are to define the local standards of community practice and to evaluate the quality of care given the patients. When discrepancies are found, the Committee usually discusses them with the provider and attempts to educate the provider. If the provider is unresponsive to the Peer Review Committee, the Committee refers the case to the Department with a recommendation.

Action is taken by the Department based upon this recommendation. Each Committee consists of at least four practicing pharmacists plus a physician advisor. They are located strategically throughout the State of California. Earlier I mentioned only a couple of the responsibilities of the Peer Review Committees. I would like to restate those, plus give you a few more of their responsibilities. Again, they are to evaluate the standard of community practice; they are to evaluate the quality of care given to the Medicaid recipient; they are to educate providers; they are to establish local community guidelines; and they are also to make a determination on the rational use of drugs.

Now how do they function? How can these Peer Review Committees really learn what the individual practitioner is doing? They use a series of computer generated print-outs. These computer generated drug utilization reports consist of the following types: exceptional patient profiles, prescriber profiles, pharmacy provider profiles, drug analysis profiles, and appropriate quantity reports. These post-payment reports are created utilizing historical provider, beneficiary and prescriber information.

To identify potential abuse of services or other problems, all providers and beneficiaries who exceed the calculated norm significantly are considered exceptions. These exceptions are then automatically isolated and listed on a series of report forms. A different report is produced for each utilization factor. Additionally, each one of these reports, or the norms that these

providers are compared against, are norms that are generated by locality. In other words, a provider in one group is judged against the peers in his own locality and not by providers in a completely different locality. As an example, a Los Angeles based provider would not be judged on the same norms (unless they happen to be the same) as a provider in a small Northern California town, let's say like Weed.

Additionally, these reports are broken out by the various aid categories we have, thereby allowing the Peer Review Committees to look at various utilization patterns of a group such as Aid To Families With Dependent Children, the disabled, and the aged.

Beneficiaries are not lumped together and this gives us an evaluation of the type of practice and the types of services that each one of these aid categories is receiving.

Each month these Committees receive a series of reports that have been kicked out based upon the exception criteria. They review the reports, make a determination after consultation with a provider, and then either make a decision to accept or not to accept the provider's explanation. If in fact, they do accept the explanation or they do find reason to educate the provider, then they close their cases as acceptable. If, however, as I mentioned earlier, this provider is not responsive to their educational procedures, then they can refer him to the Department of Health and we can take action based upon their recommendation.

A Peer Review Committee is generally considered to be primarily educational, but it is also a long-range plan. It is very difficult to see overnight success with them. An effective, well run peer review system or local Drug Utilization Review Committee will be effective, but only after a period of time where they can apply the information of what the local community standards should be or are, and what is the proper way versus the improper way to provide services to Medicaid recipients. But these Peer Review Committees cannot do their job alone: they need assistance; they need some teeth; and they need the backing of the government. We provide this in or through our audit program.

Let me talk a little bit about our audit program and how we use the various type of print-outs in our function. We use registered pharmacists as our audit personnel and to assist them, account clerks who perform the more clerical type functions. But all decisions are made by the pharmacist. Additionally, we have the ability to use other personnel in our section for review, such as physicians, nurses, physical therapists, dentists, optometrists, and the other health professionals. We use these people as the need arises. We have available to us approximately 30 months of paid claims data on tape. The print-out we receive is a complete paid history of all claims for a specific provider for a specific time period, usually 30 months, and is listed in either prescription number or beneficiary identification number sequence. The sequence

is a user option and can be changed based upon the type of records that the particular pharmacy has. We will also have available in December a computer generated statistical sample print-out for the entire 30 month period, but I will go into this a little later. These two type of print-outs are what we generally use for auditing. If I have enough time later, I will discuss the other types of print-outs we use. If I do not get into them, please ask me about them anytime during the conference.

The types of audit we perform are generally a preliminary or routine audit plus an in-depth audit. The preliminary audit consists of a review of two to three hundred line items for prescriptions located in several sections of the print-out. If there is a significant number of questionable items found, an in-depth audit is scheduled. Now, by significant, we mean that greater than ten percent of the line items that we review are not sufficiently documented in the provider's records.

The in-depth audit on the other hand, consists of a statistically valid sample of twelve hundred line items of the provider's billings. Currently we manually select the twelve hundred samples. But in December, this sample will be selected for us by a computer. You should be getting a copy of some of the material after the conference that will go into this topic in much more detail.

How do we select our providers for auditing? In the beginning of our program we wanted to determine the actual magnitude

of the problem that we were to encounter. Therefore, we used random selection. Currently we look at those providers that get kicked out on the exception reporting. We also use referrals from the Peer Review Committees, licensing boards, government agencies, health and welfare agency, etc., plus random sampling. We have a print-out that developed as a result of our original audits. In this particular print-out we have taken a known number of occurrences of different types of violations, for example, a provider that bills the Department for our maximum allowable cost for more than 75 percent of his oral contraceptives. Most pharmacies use the oral contraceptives as a loss leader type item and do not usually bill this item at the maximum allowable cost. We have found that is one indication that a provider may be abusing the program. There are approximately 12 or 14 others and these are each weighted. When we run a provider group by this program it will rank the providers in order high to low. We used this also as a mechanism for selecting providers for audit.

Now what do we look for when we are out auditing? Basically what we look for are violations of our regulations and also violations of Board of Pharmacy regulations that would have a negative impact upon the health and safety of the beneficiary. We are looking for such things as billing for a patient other than for whom the prescription was written. We are looking for a provider that bills for a greater quantity than was prescribed

or dispensed, or for a greater strength than was prescribed or dispensed. We also look into billing for a more expensive manufacturer than was actually dispensed and we look for the provider who charges the State a higher price than he would charge the general public. Those are just a few of the things that we look for. Once we find an apparent problem, we attempt to verify whether or not the service that was billed was actually the service that was provided, or whether in fact, it was a violation.

According to our regulations and statutes a service, in order to be reimbursed, must have been legally provided, that is in accordance with the requirements of practice of the licensing boards. And additionally, the service must have been provided within the various rules and regulations of the Medi-Cal program. We check this by reviewing the pharmacists's records, naturally. But we also review the prescriber's records, contact the beneficiary, and, when appropriate, review records of any facility involved, such as hospital, a long term care facility, etc. Normally, we do not require the pharmacist to keep any additional records that he provided the service except for those records that he must already keep for every prescription as determined by the licensing boards.

After listening to me run on at the mouth up here, you are probably hanging on the edge of your chairs and thinking of what could happen as a result of one of our reviews. Well, I promise not to keep you in suspense any longer. We can have a provider

consultation where we are willing to help a provider solve any problems he may have regarding the Medi-Cal program. We can also seek recovery of funds, which is an excellent way to get a provider's attention and cooperation. We also can recommend administrative, civil, and/or criminal action, plus we make referrals to the licensing boards when appropriate.

In closing, I would like to discuss some of our findings in general with you. We have found many examples of excellent pharmaceutical practice. We have also found non-compliance with statutes, rules, and regulations to a greater degree than we have anticipated. And we have found many examples of what we feel are questionable attitudes, such as, "If I don't fill it, the patient will go down the street and get it filled," or "I have got to fill it because the physician wrote it that way."

Some of our findings may be due to program misunderstanding. Some may be due to the fact that the State had not done any checking before, but some questionable methods were done intentionally. In 18 months we have performed over 500 audits. Almost 200 had significant problems, 79 of these audits resulted in excess of $917,000 in identified overpayments, and 49 of these are pending prosecution. However, even in the face of these findings, I have enough confidence in the profession of pharmacy that I believe that we will find that the amount of abuse will decrease in the future.

I would like to thank you for your courtesy and attention in listening to me. If any of you have any questions, either now or anytime during the conference, I will be more than happy to answer them.

Thank you.

Thomas A. Gaylord
Director, Surveillance and Utilization Review Division
Minnesota Department of Public Welfare: Minnesota S/UR

SURVEILLANCE AND UTILIZATION REVIEW

The Minnesota Surveillance and Utilization Review Division is the unit of the single State agency responsible for the post-payment review of provider and recipient profiles generated by the SUR subsystem of the MMIS. Minnesota is a medium sized Medicaid State with approximately 220,000 recipients and 14,000 providers. The Medicaid program was certified for MMIS by the Federal government in July of 1975 and the entire system is State operated without any involvement of fiscal intermediaries.

Minnesota Medicaid is operated by three divisions under the direction of an assistant commissioner of public welfare. The first of these divisions is the Medical Assistance Division which is the policy arm of the program. They develop and implement the rules and regulations under which the program operates as well as acting as the professional health consultants for the program. The second division is the Invoice Processing Division which does the actual processing and paying of the submitted claims based on the policies developed by the policy unit. This division also is responsible for installing and using all prepayment edits in the computerized system to reject incorrect or inappropriate bills coming into the system. The third division, Surveillance and Utilization Review, utilizes the data from the paid claims to develop exceptional patterns of practice and utilization among

Minnesota providers and recipients. After analysis by health professionals and social workers these exceptions are investigated and corrective action is taken. The same activity is carried out on complaints originating from county welfare departments, professional licensing boards, explanation of medical benefits from recipients and other sources.

The initial emphasis in the Minnesota SUR program was on recipient overutilization and a pilot restriction program. A major effort to identify provider fraud and abuse was initiated shortly thereafter, and we plan to move into more of the utilization review activities beginning January 1, 1978. Minnesota's program has successfully progressed from an unmanageable mass of computer data to a successful operating unit within two years. Approximately $500,000 has been recovered overall and 4 pharmacists have been convicted of Medicaid fraud.

The original SUR profiling package was developed by Consultec in the State of Ohio. Minnesota installed this program and has operated it with minor modifications since 1975. The standard reports generated by the system include:

I. Management Summary Reports

Class groups can be created to compare like pharmacies to each other and to create a group profile. SURS allows class grouping by county and by ownership - whether proprietary, hospital, based, etc. An enhancement could possibly be added to group by chain stores, the corner

drug store, the only store in town, etc. In Minnesota we compare all pharmacies to each other.

A. Totals Section

This section of the Management Summary Reports summarizes for each indicated item the total services or dollars that have been provided during the specified time period. These summary matrix items are the "shopping list" from which exception items are built.

B. Averages and Standard Deviations

Calculated for each item that is to appear on exception reports - items either for actual exception purposes or for display only. Averages and standard deviations are used to calculate limits. Usually this is set at the average plus two standard deviations to identify the top 5% of the providers. This can sometimes be misleading because many items do not have normal distributions. With the inconsistent standard deviations that resullt, limits set this way are sometimes useless. To overcome this, we can manually set limits, based on the frequency distributions and professional expertise.

II. Summary Profile Reports

A. The actual limits that are used for exception purposes, no matter how calculated, are displayed on the next Management Summary Report. Following this report is one which

displays the number of providers that except for each limit. This shows the analyst where to zero in for specific problems.

B. Frequency Distribution Report

The distribution of the data being used for exception processing is displayed in this report. This gives the analyst information about the validity of his averages and standard deviations and assists him in identifying an appropriate manual setting for this next run.

C. Individual Pharmacy Report

This report shows a statistical picture of an individual pharmacy that has passed all of the screens and limits described above. Each pharmacy displayed has exceeded the established norms in one or more areas. All report items are displayed here, not just the exceptional ones.

An analysis of the information contained in these reports gives the staff member the lead that he needs for selecting a candidate for an on-site audit. The next step is to order a provider detail for the selected pharmacy which shows in detail each prescription or medical supply ordered for every patient served. This report gives the analyst information on specific types of drugs, refill or new prescription, frequency, price changes, number of days supply, and the name of the prescribing physician.

In addition to the pharmacy reports, unusual pharmacy practices can also be identified from other reports. SUR physician

reports identify prescribing patterns which in turn can be followed through to individual recipients through provider details. Recipient exception reports identify drug overutilizers which frequently can be analyzed and discovered to be a pharmacy problem as opposed to a patient drug abuse situation.

The SUR reports as I have said so far have been used mainly for fraud and abuse activities. The system generates a wealth of information which can be used for studies such as the one that you heard about before the coffee break. This information we feel should be shared, wherever data privacy laws permit, with people who could utilize it for educational and research purposes. We currently are working with the University of Minnesota College of Pharmacy and School of Public Health to utilize our data for research studies.

Finally I believe that the SUR capability should be shared with the provider groups. My division has shown SUR reports and described the activities to the annual meeting of the Minnesota State Pharmaceutical Association and graduate students in pharmacy administration at the University of Minnesota College of Pharmacy. Not only do we feel that there is a deterrent effect from letting pharmacists know the Medicaid agency's capability, but also, the reports can be used to emphasize the importance of monitoring recipients' drug therapy.

Despite some early problems with the MMIS SUR system, we at Minnesota have been generally pleased with the information it

has provided for various activities. The key to successfully using the reports is to have adequate staff training so that SUR staff is capable of interpreting the information appropriately. There is a real danger in being so overwhelmed by the volume of paper the system produces that a State might file the reports in a corner and never utilize them.

Debbie Dodson
Consultant Pharmacist
Arkansas Office of Medical Services

ARKANSAS S/URS II DRUG PROFILES

I. Introduction

Arkansas has just installed a new S/URS system. It produces reports for all provider types and recipients. S/URS is an exception reporting system which collects information from paid claims, creates group reports on providers and recipients and profiles for individuals who exceed group limits.

In this presentation we'll show you some of the new features available for pharmacy benefit review in Arkansas.

The biggest improvement has been made in the way the system responds to the Pharmacy Consultant's requests for reports.

All pertinent data on drug claims is available for use in S/URS reports (NDC code, therapeutic class, days supply, refill code, LTC code, professional fee, unit cost, pharmacy I.D., recipient I.D.) The user determines which items to use, and how, for each report.

The user will establish different criteria for each type of report: Recipient, Pharmacy, Physician.

RECIPIENT:	No. of different pharmacies
	No. of different drugs
CLASSED BY	No. of prescriptions
Age, Aid Category	Percent refills
Location	No. of Narcotic Rxs
	No. of (specific) drug X

PHYSICIAN:	No. different drugs prescribed
	Avg. no. prescriptions per patient
CLASSED BY	Ratio of brand X to Generic
Specialty,	Avg. no. specific drug X to total
Location	Rxs prescribed
PHARMACY:	No. small quantity prescriptions
	Avg. unit cost per drug in specified
CLASSED BY	drug group
Location, Chain	Percent brand X to Generic Rxs filled
vs. Non Chain	

The following slides will illustrate the new system using a Pharmacy Class group and focusing on the problem of prescription splitting. The same reporting process would be followed regardless of what particular problems a State wishes to concentrate on.

Data in the slides comes from live data tests conducted prior to installation of the system in Arkansas. These will be followed by actual profiles produced in Arkansas.

II. <u>Prescription Splitting Parameters</u> (used to illustrate reporting system)

- This problem area will be used as an example to follow the logic of the S/URS II matrix, control file, and exception reports.
- Prescription splitting parameters are:

  1. avg. quantity/Rx - low
  2. unit cost - high
  3. pct. - Rxs quan. less than 50 - high

- These parameters are applied against <u>maintenance</u> drug groups only, of which there are about 10 groups. In this presentation, the estrogen replacement group will be used for illustration.

III. Creating S/URS II Reports

A. Matrix

- The matrix consists of all data elements to be collected and totaled. From the slide, the data to be totaled for estrogen replacement drugs is specified. For example, line 60 is total Rxs for estrogen replacement products, and line 65 is total quantity (units) dispensed of estrogen replacement products.

B. Control File

- The control file tells the computer how to manipulate and display the data.
- Section 08 denotes estrogen replacement utilization and the numeric progression 01, 02 . . . etc. denotes the report items for estrogen replacement utilization.
- Section 08, line 04 specifies report line item "average quantity dispensed/Rx," one of the prescription splitting parameters. Its derivation is determined by entering instructions to the computer on how to manipulate the matrix line items. Directly above "average quantity dispensed/Rx" is the notation R065/060. This means we have instructed the computer to take the ratio of matrix line items 65/60 - thus the derivation of "average quantity dispensed/Rx." Each report item is determined by control file instructions.

- The control file can be changed by simply filling out a form. This flexibility allows changing the reports as frequently as desired.

IV. Types of S/URS II Reports

- totals
- group summary
- exception log
- detail profile
- frequency distribution
- special reports

A. Group Summary Report

- By section and line item, the class group totals are summarized.
- Average, standard deviation, sample size, upper and lower limits, and percent and number of exceptions are reported. User may specify fixed limits. Sample size equals number of individuals used in this line item.
- Note for section 08 (estrogen replacement utilization) line 04 (average quantity dispensed/Rx), the average quantity is 76.44 and the lower limit is 28.70. When we get to the individual pharmacy profile, we will observe that the pharmacy falls outside this limit. The same is true of section 08, line 08 (average unit cost).

- The group summary reports assist the user to determine the meaningfulness and validity of the line exceptions (e.g., what sample size was involved, etc.)

B. Exception Profile

- Each individual pharmacy is compared against the group summary statistics and limits.
- Pharmacies falling outside the limits established by the group summary on any active line item will cause an exception profile to be generated.
- Limits can be set manually as well as computed automatically.
- Exceptional line items are designated by an alpha character to the right of the numerical column. The alpha character specifies the sample size used to determine the limit.
- Following through on the estrogen replacement example (section 08), for the individual pharmacy exception profile, the pharmacy excepted on lines 04 (average quantity dispensed/Rx = 28.07 vs. group lower limits of 28.70), 05 (pct. - quantity less than 50 = 100% vs. group upper limit of 80.92%), and 08 (average unit cost = 0.16 vs. group upper limit of 0.13)
- This individual pharmacy provider also falls outside the limits for the same three line items for "antirheumatic agent utilization."

C. Exception Log

- Part of the exception profile.
- Gives a "relative exception value" for each aberrant pharmacy and ranks for the reviewer suspicious pharmacies. The pharmacy we have been following has a "relative exception value" of 35.00 and thus produces a high index of suspicion.
- The page number of the exception profile is printed for each pharmacy for ease of access.
- Reviewer/auditors with limited time resources can use the relative exception value to plan review activity, the highest ranking first and the lowest ranking last.

D. Detail Profile

- Once the reviewer/auditor has scanned the exception profile and isolated the pharmacies he wishes to audit, he then requests the claim detail pharmacy profile.
- The detail profile lists all claims submitted by a pharmacy and is used by the reviewer/auditor to verify problems implicated in the exception profile.
- Following through again on our suspicious pharmacy, we see the prescribing of small quantities of estrogen replacement products:

slide 1: Gebhardt - Premarin
slide 2: Macey - Premarin

Two addiional patients were observed on the detail profile to be receiving small quantities of estrogen replacement products.

- The exception profile for this pharmacy also indicated prescription splitting in the antirheumatic agent group, and on the detail report we observe a similar pattern:

  slide: Campbell - Naprosyn

- A serendipitous finding on the detail profile is the unlikely prescribing of four days supplies of a tetracycline derivative:

  slide: Singer - Minocin

- Any of these occurences in isolation would not be grounds for suspicion, but the several instances and the pattern observed gives high probability that prescription splitting is occurring.
- The reviewer/auditor must then perform an on-site audit to verify the suspicious evidence divulged by S/URS II.

E. Frequency Distribution

- For each section and line item, a distribution report can be generated for the class group.
- For section 08 (estrogen replacement) and line item 05 (pct. - Rxs quantity less than 50), 478 pharmacies out of 887 dispensed estrogen replacement products in

excess of 50/Rx 100% of the time. Thus, the frequency distribution gives a good picture of the standards of practice pertaining to the line item being calculated and gives the reviewer an evaluation of the usefulness of the line item.

F. Drug Group

- All drug groups are developed by assembling a table of NDC codes of the specific products. Drug group 05 is the table for estrogen replacement products.

V. Bill for Higher Cost Brand Than Dispensed

- The chloral hydrate manufacturer's disclosure list illustrates the reason for tracking this abuse.
- S/URS II calculates total claims submitted by a pharmacy for a specified drug entity. Then it calculates the higher cost brand name as a percent of the total.
- Pharmacies dispensing a high percentage of higher cost brand names relative to their peers will be excepted. This does not indicate abuse but might cause the reviewer to audit exceptional pharmacies for this potential problem.
- Any therapeutic class or drug entity may be tracked in the S/URS II progam as long as the appropriate NDC drug tables are compiled.

VI. Arkansas pharmacy profiles (slides)

PUBLIC AND PRIVATE SECTOR ROLES IN THE QUALITY AND COST OF MEDICAL AND PHARMACEUTICAL SERVICES

Dr. M. Keith Weikel
Acting Director, Medicaid Bureau
Health Care Financing Administration
Department of Health, Education, and Welfare

I appreciate this opportunity to spend a few minutes with you today.

Pharmacy has provided me with the education and background to enter the field of health care and ultimately to enter government service and to assume the leadership of the Medicaid program. Pharmaceutical reimbursement and utilization review programs which are the focus of the conference have been very important in my personal career. Therefore, it is probably appropriate that one of my last presentations at the conclusion of my first tour of public service is to a group concerned with the management of Medicaid drug programs.

This conference is especially significant to me because it is sponsored by the Institute for Medicaid Management which we established a year ago. This Institute has a real opportunity to transfer innovative management tools, techniques and technology from one State to another State program, from Federal to State program, from State to Federal program, from private to public sector and from public to private sector.

This Institute has helped improve the management of some components of the Medicaid program by facilitating the exchange of information about exemplary practices between various levels of Government and between the public and private sector. This Institute can have a significant effect on whether quality pharmaceutical and medical services are delivered to our recipients at

reasonable costs. In the future the overall management of Medicaid and other health financing programs will be improved as a result of the communication of successful techniques to control quality and cost which are developed by States and the private sector.

I would like to take a few minutes today to reflect on some of my observations as a result of seven years in government.

1. First, many Americans are confused about how they can or should relate to their government and government officials. On the other hand, government and government officials do not do a very good job of providing easy means to interact with government officials or access government programs. This is true whether we are talking about the general public, recipients of government programs, pharmacy, medical or other health care professionals and businessmen. If we are to successfully address the complex problems of our society, government will have to understand the real needs and problems faced by our citizens, professionals and businessmen. On the other hand businessmen and members of the professions must understand how government operates and what problems confront public officials.
2. Second, it is critical that government employees and advisers come from diverse backgrounds in our society. It is especially important for professionals such as

pharmacists, physicians, lawyers and successful businessmen to consider a career in government service. As a minimum, professionals and businessmen should consider devoting some time to government service. This could provide firsthand knowledge of government, the problems confronted by government officials and the tremendous psychic income provided by exciting government careers.

In this post-Watergate era in Washington and State government, professionals and businessmen may be concerned about potential conflict of interest charges should they join government. This is clearly possible because the media may be very quick to make these charges. However, it is essential that government policy makers understand the economics and policies of the industries and professions they reimburse or regulate. Conflict of interest can be avoided by a complete devotion and commitment to your government employer and the citizens of the country and to do what you believe is right based on the best advice you can get. However, a commitment to objective public policy by professionals and businessmen who enter government may result in the alienation of old colleagues from industry or the professions who believe they should be treated more kindly or given preferential treatment because you were once one of them. This shows a certain immaturity on the part of some elements of the business and professional community and a lack

receiving prescriptions were receiving drugs which interact with other drugs they were using. Dr. Kenneth Melmon, writing in the New England Journal of Medicine some time ago, indicated that 3 to 5 percent of hospital admissions are primarily for drug reactions. He also indicated that 18 percent or more of hospitalized patients have drug reactions. Adverse drug reactions caused by prescribing some types of medications and other manifestations of irrational prescribing all have economic consequences. Various studies have come up with different estimates of cost reductions which would result from reductions in bad prescribing practices. Maronde suggests a minimum of 14 percent; the San Joaquin Foundation suggests 12 percent. If we are going to take advantage of the savings that might result from improving the quality of drug therapy, we need to develop and then apply a coherent drug utilization review strategy both within the context of government programs and to the country at large. In doing this we must be careful to go beyond simply identifying inappropriate practices; we must involve providers at every step of the way in defining what we mean by good quality care,in the identification of inappropriate practices, and in reeducating their colleagues who engage in them.

Our efforts to improve the cost effectiveness of our drug programs have focused on MAC. Perhaps it is inevitable in the nature of the relationship between private interest and public purpose that legitimate cost containment efforts should meet

with opposition from those affected by these efforts. The recent history of our efforts to get the MAC program going illustrates this problem very well. Although to some degree we created our own problems by the way we handled the implementation of the program, we have encountered very determined opposition from many quarters. Physicians accused us of interference in the physicians' practice of medicine. The pharmaceutical industry argued that our efforts rest on unproven assumptions about the quality of drugs in the marketplace, that MAC will adversely affect expenditures for research and development, and that the program can't produce the level of savings expected of it. Pharmacists and pharmacy groups have argued that some types of pharmacies can't buy drugs which have MAC limits set on them at or below the MAC price, that estimated acquisition cost ought to be replaced by an actual acquisition cost reimbursement methodology and that the MAC program doesn't provide a fair fee to reimburse the pharmacist for the cost of filling a prescription. Even some of our own program administrators have argued against some aspects of the program as being too difficult or costly to administer.

I'm not saying that there may not be a significant element of truth in some of the criticism that has been leveled at our cost control efforts. It does, however, seem to me that these criticisms indicate a pronounced tendency to look at the trees

and lose sight of the forest on the part of those affected by our containment efforts. As a result, a largely unrecognized consensus has developed among MAC's critics that it is not possible to both:

a. Make sure that government programs will be run in the most cost effective way possible consistent with providing good quality care, and

b. Preserve the economic incentives needed to keep providers of care in the health care system while maintaining sufficient flexibility in the system to allow providers to supply good quality care. I don't agree with this view.

How, you might ask, do we achieve the goal of cost effective government programs and a flexible health care delivery system in which the economic incentives that keep it viable are maintained? Answering this question will require dealing with a great many complex technical issues like what should be paid for drug products and for the services provided by the pharmacist. Whether and how these technical issues are resolved depends, I think, more than anything else on representatives of government, physicians, pharmacists and third party program administrators. Finally realizing that, while we may look at things from different perspectives, solving the problem of cost containment is a common goal, the achievement of which will benefit us all.

Adopting this new viewpoint will require a certain amount of faith from each of us that the others involved in the cost containment problem are not out to do us in. It will require that each of us is sufficiently flexible to seriously re-examine and possibly abandon cherished old ways of doing things. Pharmacists will, as new technology reduces the importance of the dispensing function, have to find other new functions to perform. Will patient counseling, utilization review and the like provide ways through which pharmacists can make a greater contribution to the quality and cost effectiveness of the health care delivery system? Physicians will have to take steps to increase the rationality of their prescribing practices and will have to become more aware of the economic consequences of their prescribing practices. The pharmaceutical industry, as a minimum, will have to begin to make available more information by which the reasonableness of its prices can be judged. It may also have to reconsider some of its advertising and promotion expenditures. The government for its part will have to become more innovative in designing programs which are cost effective and in developing cost containment mechanisms for existing programs. It must do this without ever becoming so convinced of the rightness of its objectives that it fails to take into account the legitimate concerns of those who are affected by and benefit from what it does.

I'm not sure how we will go about solving the problems which face us. They are many and difficult. I am sure that what we must do is stop making speeches at one another and sit down together and try to deal with them in a more constructive fashion than we have done in the past. I am sure that if we approach them with a certain amount of faith in the motives of our colleagues and a lot of flexibility with regard to our own viewpoints, nothing is impossible. We are all in the same boat and the sooner we realize that we will probably not go anywhere unless we use our oars together, the better. So, in conclusion, while I may be relinquishing one oar next week, I expect I'll still be here in the boat somewhere and for that reason I wish you all luck in moving it in the right direction.

Both good planning and better management are indispensable to the revolution of control which we must impose on the American health care system. Neither can achieve control alone. Above all, the crisis in health care cannot be solved simply by the enactment of new government subsidy programs. We have already gone down that road as far as we can safely go. Before we go further, we must improve fundamentally our ability to plan prudently and manage effectively. Of course, the prospect of National Health Insurance is in the background. But it would be fatal for us to wait for that even passively. We must reform the health care system so it is able to bear

the great strains which NHI will certainly impose upon it. And we must do this as soon as possible. To accomplish that would truly be a revolution in health care for America.

A Call To Partnership

In closing, I want to emphasize that we can only achieve this task together. The Federal government cannot act alone in health care. State and local governments on the one hand, and the private health care sector on the other, are our partners in every aspect of the health care enterprise. This division of reponsibility is a fundamental reality which no reform of American health care should seek to change. It is one of the great strengths of our health care system that initiative is dispersed and different approaches to good care can be tried out by providers and governments in different localities. ...But with participation must go responsibility. States, localities, and private providers must all join with the Federal government in guiding responsibly the health care system in which we all have an interest. Together, we must plan for a challenging future, and we must manage the system we have.

Together, we have the power to master, rather than be mastered by, the revolution in health care. The rising expectations of our people can be met through an exertion of reason and control. But to do this, we must believe in our

of understanding of how government and government employees should work.

Sadly, for me, my departure will bring to an end the close working relationship that has been established between us over the last few years. Together we had many accomplishments and some significant failures. At this point, rather than dwelling on past successes, I'd rather spend my time with you looking at where we are and where I think we should go in the future.

Anyone who opens a newspaper these days will be regularly confronted with articles commenting on the rising cost of health care and what should be done about it. An examination of the growth of health expenditures provides an explanation for these expressions of concern. National health care costs will be about $160 billion in 1977, up from $69 billion in 1970 and $39 billion in 1965. Health care expenditures have increased as a percentage of gross national product from 4.5% in 1950 to 8.6%. Although the Medicaid and Medicare programs did not start the health care cost spiral, spending for these programs has significantly helped to fuel even more rapid increases in health care costs. These increases have in their turn dramatically affected the cost of our programs. Between fiscal year 1967 and 1977, Medicaid program costs increased from $2.5 to $17.2 billion. Medicaid expenditures increased during the early 1970's from 17-24% a year. In the last several years the growth in Medicaid expend-

itures has been at a decreasing rate. The rate of increase this past year was down to 14% compared to 24% two years ago.

There is no greater illustration of the need for effective cost containment programs than the fact that Medicaid and Medicare expenditures alone increased almost $7 billion between FY 1976 and FY 1977 at a time when the increase in eligibles was in the neighborhood of 1-3%.

In considering where utilization review and cost containment programs should be directed, one must consider where our public health financing dollars are being spent. In Medicaid for example, 4.5% goes for administration and 95.5% for services. Seventy percent of service expenditures are for institutions and 30% for ambulatory services. Unfortunately, when States are confronted with fiscal problems the cuts are too frequently taken in the ambulatory service reimbursement rates because the statute allows latitude in this area. Unless the State has a very sophisticated utilization review program, these savings from reducing fees may be illusory.

I've engaged in this slight historical diversion only to make the point that cost containment is and is likely to continue to be our number one problem for some time to come. Initiatives to contain rising hospital and nursing home costs must have top priority because they account for by far the largest share of total health care expenditures. Drug and

physician expenditures have not been unimportant, however. During Fiscal Year 1976 expenditures for drugs and drug sundries accounted for $11.2 billion or about 8 percent of total national health care expenditures. Expenditures for drug benefits provided during Fiscal Year 1976 under the Medicare and Medicaid programs amounted to approximately $2.6 billion.

Assuming that cost containment continues to be an issue, if we narrow the focus to consider questions of drug cost containment, one central question emerges. It is, what can we as practicing physicians, pharmacists, pharmaceutical industry representatives, government and private third party program administrators do individually and collectively to solve this problem? I think there are two answers to this question. We can use utilization review techniques to assess the quality of drug therapy and try to reduce its cost by eliminating irrational prescribing that occurs. We can also take steps to improve the cost effectiveness of our reimbursement programs which, as you know, is the objective of the MAC program.

I think it's fair to say that a reasonable amount of evidence has piled up in recent years that rational prescribing--getting the right drug to the right patient, at the right time and in the right amount--is a goal that we are a long way from achieving. A study by the San Joaquin Foundation some time ago showed that 7.6 percent of those

powers, agree among ourselves, and then work together as we have never done before.

Thank You.

WORKSHOP A - LOCK-IN PROGRAM

Gene Thomas
Pharmacist Consultant
Kentucky Medical Assistance Program

LOCK-IN PROGRAM
SYSTEM FLOW SPECIFICATION

In the last ten years the cost of health care services has increased astronomically. The primary method by which health care can be contained is through a more diligent use of available medical services. We must all learn what our health needs are and identify the most effective mode of treatment available. This is true with the general public as well as the Title XIX patient.

While there is a concern regarding over utilization of physician and pharmacy services by the private as well as indigent client, identification of such inappropriate utilization through publicly financed health care systems provides the impetus for innovative programs to effect changes in utilization patterns.

The first phase of the Kentucky Medical Assistance Program's Lock-In process involves the initial screening of all recipients utilizing available covered benefits. The recipient utilization exception reports contain all recipients receiving 15 or more prescriptions per month, all recipients receiving prescriptions for 10 or more drugs in the neurological categories per month, and all recipients visiting 4 or more different physicians during a quarter.

The initial screening process involves the identification of utilization patterns that cannot be easily explained. For example, a patient receiving multiple drugs, dispensed by different pharmacies, and prescribed by various physicians would be referred to Phase II, the secondary screening process. If the utilization pattern does not identify inappropriate or unexplainable utilization, no further investigation is necessary.

It must be pointed out that the parameters in use identify numerous recipients without categorizing recipients into class types. Under the Medicaid Management Information System (MMIS) Surveillance and Utilization Review (SUR) reporting systems the exception process will be flexible in identifying utilization patterns for various categories of patients, i.e., by age, sex, geographic location or any other categorical class the division may identify as useful. To avoid unnecessarily large exception files the exception parameters utilized in the initial screening will be flexible. For example, we may initially set either arbitrary parameters or a parameter calculated from a mean population utilization pattern plus two standard deviations (2.5% of the population) for each unique categorical class of recipients.

Phase II-secondary screening involves those recipients passing through Phase I. The secondary screening process involves compiling patient profiles of all pharmacies and physician services rendered within the last six months for the involved recipients. If a review of the profiles does not explain the questionable

utilization patterns, each patient profile is sent to the involved physicians. Since most computer reports contain numerical codes, it is presently necessary for program staff to decipher National Drug Codes (NDC), Diagnostic Codes (ICDA), and procedure codes when preparing the profiles for review by a patient's physician(s). Phase III provider involvement lock-in informational material is included with the patient profiles sent to physicians along with a letter requesting the physician(s) to review the profile and make beneficial comments or recommendations regarding the recipient's utilization pattern. The program supplies the physician(s) a form to facilitate his response, the form is folded and stapled and is pre-addressed and pre-stamped.

The involvement of the patient's physician(s) is a vital component of the lock-in process. Many times a physician is treating a patient unaware that the patient is also being treated by other physicians. He is unaware that the patient is taking inordinate numbers and types of drugs, and usually expresses a strong concern over the potential adverse reaction to multiple drug therapies.

Of course, the possibility exists that the physician(s) are aware of the patient's utilization pattern and indicate that in certain cases the high utilization is medically necessary. In such cases, no further action is necessary. However, if the physician recommends that the patient could benefit through the lock-in program, the case will proceed to Phase IV.

In Phase IV the Division for Medical Assistance notifies the client and all other eligible household members by letter of their inclusion in the lock-in program. A copy of the letter is sent to the local Bureau for Social Insurance (BSI) office. The letter briefly explains the lock-in program and contains instructions for the client to follow for receiving future Medical Assistance Identification Cards (MAID). The client and each eligible member of the household must select one lock-in pharmacy and physician. The Division for Medical Assistance will allow members of the household to select different providers, e.g., pediatricians, obstetricians, gynecologists, etc. A unique pink card is issued to each lock-in client. This card identifies the client's lock-in status, physician and pharmacy. It contains an area for the providers to record service dates, and contains directions and other information for requesting additional services. The local BSI worker explains the program and informs the clients of their rights to appeal the action.

Each client has the right to appeal any action taken on their case. A small percentage (5%) of the potential lock-in clients do request hearings on the matter. However, if the lock-in program is presented to the client as a positive, beneficial program benefit,, rather than a negative or punitive deterrent, the probability of an appeal is lower and the success of the lock-in program improves.

In the event a client requests a hearing, program staff must make available to the hearing officer all the data and correspondence utilized in the decision-making process. Therefore, program staff must be diligent in the initial phases of the lock-in process. Patient profiles must be reviewed by staff nurses, and the patient's physician. The staff nurses have a physician consultant available to the program, and do utilize his judgement when needed. The hearing officer will uphold the Division for Medical Assistance's decision if the program prepared a comprehensive profile and has a recommendation from the patient's physician.

Phase V involves notifying the lock-in physician and pharmacy of the new lock-in case. The Division for Medical Assistance notifies and sends the patient profiles to the local public health nurse and social service worker requesting their professional involvement in the case.

The nurse and social worker roles are the most important component of the lock-in program.

Briefly, their roles are:

1. Assessment of the client's health needs and the apparent reason(s) for the high utilization rate of physician and/or pharmacy services.
2. Development of a plan of care based on the individual needs of the client.

3. Coordination of services with the client's physician, pharmacist and social service worker.
4. Evaluation of the client's progress and case disposition recommendations.

The nurses's objectives are for the patient to:

1. Understand his/her health problems and treatment plan, including the purpose of the prescribed drugs.
2. Become knowledgeable concerning community resources which may be of assistance in coping with health care needs.
3. Interpret, evaluate and differentiate between those signs and symptoms which are of little significance; those that can best be dealt with by other professionals or through community-based resources.

Social Worker Role:

1. Contact the local BSI office to obtain any additional pertinent information regarding the clients and their families.
2. Assess family situation through description of family life, other household members, and a brief summary of how the activities of the various family members are influenced by children attending school, employment status, etc.
3. Identifiy potential problem(s) that may have precipitated any inappropriate utilization of services.

4. Discuss and counsel client of possible causes of the problems.
5. A mutually agreed upon plan for effectively coping with the problems identified.
6. Six-month evaluation, assessment and recommendation of the client and the Division for Medical Assistance concerning the patient's coping ability and behavior.

The public health nurse and social worker work together on the case management of the client. They complete the initial case assessment together and discuss their specific findings for determining the etiology of the patient's problems, i.e., medical, social, or both. Based on their mutual assessment, they determine a plan of care based on the individual client needs. Without the educational assistance of the nurse and social worker, the lock-in program would entail only an artificial control over recipient utilization patterns. The education of recipients on the health and social needs can be achieved only where there is a mutual understanding, acceptability and commitment by the patient and the counselor(s).

The positive results of the nurse-social worker-pharmacist-physician team approach to the lock-in client's needs are a more effective utilization of health care services and a potential long term reduction in per/recipient health care costs.

After a client is taken off lock-in, as recommended by the team, the Division for Medical Assistance evaluates the client's

utilization pattern for approximately six months to verify and insure the patient's understanding of health care needs.

It must be pointed out that the team approach is not 100% effective; there do exist cases where the concentrated efforts of the team fail to modify the client's utilization pattern, thus the client may stay on lock-in indefinitely.

The lock-in program has not proved to be an effective control over the improper utilization of the hospital outpatient departments. It does, however, offer assistance in educating clients of their health needs and how to effectively cope with them.

Any questions?

I'm sure most of you would like copies of this presentation and the flow chart, and I can supply them to you. However, they are not free. You must write to me and explain the procedure utilized by your agency in the area of controlling recipient utilization patterns including the inappropriate utilization of hospital emergency rooms.

Thank you

WORKSHOP B - STATE EXPERIENCE WITH DOLLAR LIMITS AND PRESCRIPTION LIMITS

Roy Wiese, Jr.
Program Manager, Pharmacy Services
Texas Department of Human Resources

UTILIZATION MANAGEMENT TECHNIQUES: TEXAS MEDICAID DRUG PROGRAM

It is a pleasure to accept your invitation to discuss the "heart" of our approach to managing the Texas Medicaid drug program. Although these administrative methods may be only of indirect interest to the average taxpayer or legislator, we have here today an audience that demonstrates its interest simply by making the effort to attend... and we hope that our report will leave you with some specific, implementable ideas.

You, after all, have the same problems we do! Our most persistent problem--does this sound familiar?--is money. In the recently completed fiscal year, we were able to return $5 million to the general fund by operating under budget. Some $3 million was returned during the preceding fiscal year, for a total of $8 million during the last biennium. Then the Legislature, in gratitude, reduced this coming year's budget request by $3.5 million compared to last year's! When we hear some of you saying that Medicaid management can be a "no-win" proposition, there are plenty of times when we would mutter "Amen."

But, for us in Texas, it isn't really as bad as it sounds; our utilization management system has put the Medicaid drug program on a systematic and professional footing... and most of the legislators and, for that matter, the health professionals in

Texas, seem to understand and appreciate this approach. For example, both the Texas Pharmaceutical and Medical Societies have formally adopted resolutions of support and commendation for our drug program.

But let us return to the subject: the utilization management techniques we employ. Although the three-prescription monthly limit and non-payment for adult vitamins and anorexics are important constraints within our system, they don't come close to being the total system. What really makes our program work are pre- and post-payment screens. Our 24 pre-payment screens include eligibility, potential duplicate claims, the lapse between prescribing date and dispensing date, and refill authorization. There are 19 post-payment screens, or flags, which include monitoring large dollar amounts per prescription, day's supply of drugs, scripts-within-therapeutic categories, concurrent prescriptions, use of multiple pharmacies-per-month (using $35 per month as a flag), and so on.

It simply is not logical or desirable, in our view, to elevate scripts-per-month, dollars-per-month, day's supply, or any other single utilization parameter to the status of a "panacea" for either recipients or providers. Instead, we believe that a broad family of screens--including those just mentioned and the addition of new screens or the modification of present ones--are of great value in helping us to understand the problems better.

It is important at this point to interrupt and note that—despite program restrictions—we do not interfere with the practice of medicine. We allow physicians to prescribe drugs in the usual and customary manner.

The basic faith we have in our approach is not lessened by the need for periodic updating of various elements of the program. Those of you who have visited my office in Austin perhaps remember seeing a wooden plaque on my wall bearing the inscription: "In God we trust... all others we audit." A little exaggeration sometimes helps make the point, wouldn't you agree?

As an independent check on the adequacy and efficiency of our computer-based screening programs, we periodically subject the total system to independent audit (we use Ernst and Ernst). Combining the best of the internal and external advice has not only resulted in more effective screening but also has optimized claim turnaround times. Currently, 98.5% of all eligible claims are being paid within fifteen days. Careful auditing, we conclude, does not need to result in payment delays.

We frequently have been asked why this auditing-intensive, utilization management approach is such a prominent feature in our system. In answering, I would like to quote the late Dr. Phil Gates, a key figure in the design, growth, and relative success of our program in its crucial formative years:

"The most effective, the most efficient, and the most economical system for supplying pharmaceuticals to patients

is the one most nearly approximating the average 'man on the street's' relationship with his prescribing physician and his dispensing pharmacist. The system of checks and balances--competition, and good business acuity has withstood the test of time... The intention of the Texas Medicaid drug program is to approximate as closely as possible this system of checks and balances."

Since the price of a prescription in the eyes of a Medicaid recipient is zero, the stage is set for overutilization. A "wide-open" Medicaid program lacks the checks and balances that are present when the patient pays for his own medicine.

The restoration of "checks and balances" that Dr. Gates referred to takes the form of a system to minimize overutilization, and this is exactly what has been built into the Texas program.

I have already begun to describe our system to you by mentioning some of the screens employed. But let me be more organized and mention the three most critical elements that make up our organization.

1. Computer Systems

In this age of "MMIS" and "S&UR" systems, we are less unusual than we once were. But we are told of one State, for example, that produces pharmacy provider profiles--but then never even looks at the profiles in deciding which pharmacies to sample for its field audits! We strive to be at the opposite end of the spectrum from that State. Our State-run EDP group generates

provider and recipient profiles on the basis of exception criteria. These outputs are the very life-blood of the audit effort. Well-designed, carefully maintained, and intensively utilized computer-generated profile systems are the first of our major program segments.

2. Regional Pharmacy Audit Teams

Although it is not always possible, we in Medicaid management might well make the decision on field audit staffing the same way many private companies decide on the size of their sales force: they continue to add people until the net additional revenue the "last" man added exactly equals the total cost of maintaining him. Using a politically salable variant of this logic, we currently have thirty auditors who do fiscal accountability checks on the 2850 pharmacy providers in Texas. This is a ratio of one auditor for every 95 pharmacy providers. Perhaps you might compare this ratio with the figure for your own program. In addition to our auditors, we have six trained investigators who look into cases of possible fraud.

However, there are other elements as important as total manpower in determining the effectiveness of our field audit groups--specifically, the professional qualifications and credibility of the personnel and their access to the key computer data resources. This is accomplished by having 20 pharmacists on the regional auditing teams and by having "on-line" computer terminal gear in every regional office. The 20 pharmacists also serve as pro-

fessional resource people for the non-pharmacist auditors and for the six investigators. We believe that all of these elements contribute to our total field capability. And, the local character of our regional field organization also seems to be a factor in its acceptance by providers. When problems are discussed, the providers are not talking to some faceless bureaucrat from Austin.

This point leads directly to the last of the three major segments of the utilization management system for the Texas Medicaid drug program.

3. Relationship with Providers

If I may quote Dr. Gates once more, "Without the cooperation of prescribing physicians and dispensing pharmacists, it will be impossible to have a Title XIX Drug Program." We still think this is a straightforward proposition.

A few States seem to be exploring the possibility of operating a Medicaid program in total, or a drug program in particular, in a confrontive, adversarial environment, but we have done everything we can to avoid it. The whole concept of utilization management rests on the presumption (and thus far it has proven true for us) that those who abuse a program will abuse it extravagently. This is why we believe so strongly in our prepayment screens. Our after-the-fact, "IRS-style" approach would flounder if every provider and recipient equally abused and cheated our program--management-by-exception obviously cannot work without "exceptions."

A successful relationship with providers is not terribly difficult to achieve, in our view, but it does take some time. Providers seem to respond favorably to consistent, evenhanded, non-accusatory, communications-intensive treatment... and prompt payment! If their leadership comes to trust your "business-like" approach to managing your program, they can and will assist in appropriate discipline of the relatively few members of their professions who are slow to "get the message."

Having described, at least in general terms, the philosophy, structure, and organization of the Texas Medicaid drug utilization management system, we turn to the "bottom line" question of results. Can results be measured and, if so, how do the Texas results compare to other states? Although I will present very specific comparisons in just a moment, let me note with pride that the effectiveness of our program has apparently been noticed by at least one influential person. At a press conference on June 9th, 1977, HEW Secretary Joseph Califano commented:

> "The State of Texas has the best record of all with respect to pharmacists, only 1.9% of the pharmacists are in excess of our standards and that is virtually zero in the context of the program we are talking about. They have an extraordinarily effective program there."

The Texas Medicaid drug program has demonstrated utilization management that is more effective than the average of all Medicaid programs (we have the supporting data.) As an illustration of the

effectiveness of our program in controlling costs, I will compare our program to its "ideological" opposite: Medi-Cal.

A detailed analysis of the top 200 drug entities and strengths in the Medi-Cal and Texas outpatient drug programs led to the results shown in Table 1.

TABLE 1

COMPARISON STUDY OF TOP 200 DRUG ENTITIES AND STRENGTHS
FOR THE PERIOD FY 73 - 76:
TEXAS AND CALIFORNIA MEDICAID

	Texas	California
Measures of Utilization:		
Rx per recipient	-5.8%	+30.7%
Units per Rx	+4.3%	+ 9.0%
Net Utilization Growth	-1.7%	+42.5%
Other contributions to Rx Drug expenditure increases:		
Pharmacy fee index	+17.3%	+ 5.7%
Ingredient price index	+ 9.9%	+20.2%
Medicaid drug recipients	+60.1%	+ 5.9%

The data suggest a number of interesting implications, but let me highlight just a few:

- Since all of us would probably agree that mini-MACS, restrictive formularies, and other unit-price-oriented controls are not designed to reduce utilization, and since Medi-Cal's drug program seems heavily dependent on just such a price-oriented approach, it is perhaps not too surprising that our

net utilization went down 1.7% while Medi-Cal's utiliization factor rose by 42.5%.

- In light of Medi-Cal's price constraints, it may seem unexpected that Calfornia was not even able to control ingredient cost growth as well as those States that depend principally on competitive market forces to control drug unit prices. Specifically note the 9.9% growth in unit prices for Texas compared to the 20.2% growth for California. Although we do not show it on this comparative chart, there was an interesting relationship within the California data: the unit prices of drugs on their mini-MAC list rose 27.8% while the drugs without price-controls in the same program rose only 16.3%!

If utilization was not the major cause of the increase in our drug program expenditures, what was the cause? The study demonstrates that the largest factor was an increased number of recipients. Our drug program began with about 3.1% (362,400) of the total State population participating in FY 73. By FY 76, it had grown to 4.7% (580,100) of the population--a sharp rate of growth, even though the absolute level of participation is still lower than some other States. California, for example, has nearly 10% of its population receiving drugs under either Medi-Cal or the State supplemental program.

The federalization of SSI hit us pretty hard financially, and we now find ourselves with an increasing percentage of our total eligibles in the old-age-assistance category. SSI categorical eligibles as a percent of total eligibles was 43.7% in FY 76 in Texas, in contrast to a national average of only 27.5%. If anything, this fact puts substantially more emphasis on the need for effective drug utilization management, since the per-capita utilization of drugs by the elderly is considerably higher than that for other segments of the population.

Although this comparative study of Texas and California was done by the analytical staff of one of the large pharmaceutical companies (Eli Lilly specifically), the findings and conclusions were reviewed with the Medicaid staffs of both States and we are satisfied that their methods are sound.

Adding weight, in our view, to the Lilly comparative findings are the results of another independent study of the same two programs by Pracon Corporation—a Washington, D.C., consulting firm that has done a number of health care delivery studies for HEW and other clients.

By basing their analysis on per-capita utilization within eligibility categories, Pracon included in their calculations the demographic differences between the two Medicaid programs: the Texas Medicaid program having a greater proportion of its total eligibles in the aged category, as we mentioned.

When normalized by these methods to facilitate comparability of the two data sets, Pracon found that Medi-Cal could have realized a 10.5% direct expenditure savings per eligible (or 8.4% per recipient) in FY 1975 had it employed the Texas utilization management approach instead of its current price-control-oriented program. Medi-Cal drug program administrative costs, when similarly adjusted for aid category differences, were found to be 2 1/2 times higher on a per-eligible basis than in Texas. Had these administrative costs-per-eligible been at the same level in both States, total Medi-Cal administrative costs would have been $5.7 million lower in FY 1975.

Our conclusions? Quite simply, the price-oriented MACs and formularies in Medi-Cal are, at best, not cost effective and a combination utilization and fraud detection management system like ours is cost effective.

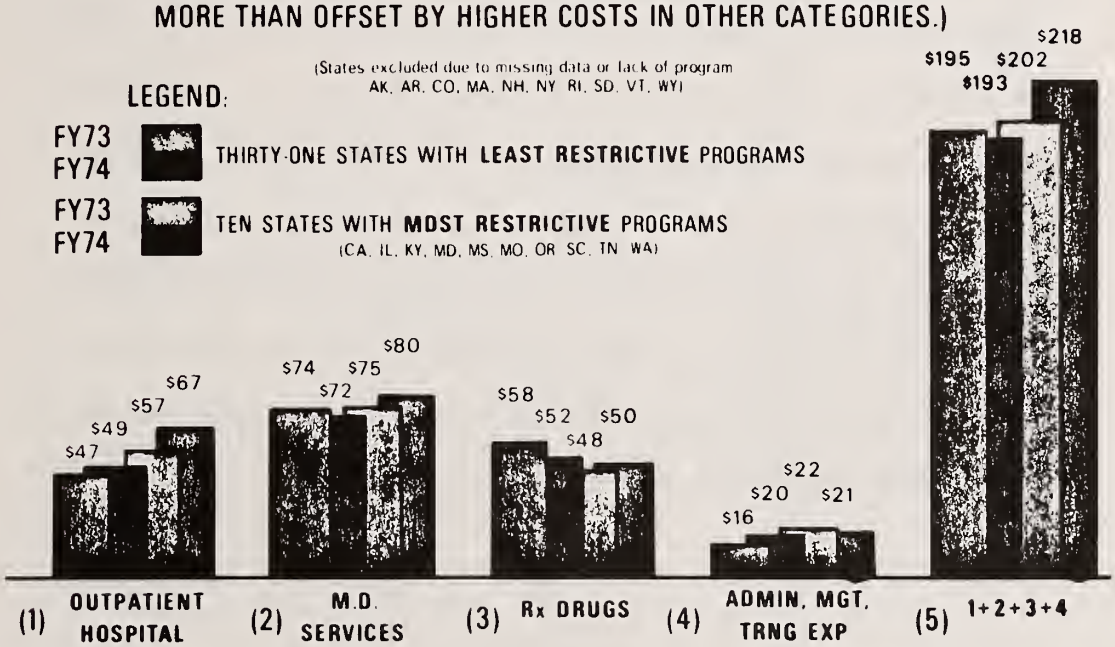
Another logical question about our utilization control techniques is whether they generate indirect costs in other portions of the total Medicaid program. Could such indirect costs be enough to counterbalance the savings in the drug program? As the data in Table 2 imply, we think this question is more logically addressed to those States, like California, that use price-controls. In the total of these restrictive States, the marginal cost-per-recipient drug savings ($2 in FY 74) are more than offset by higher costs in other categories... as it says in the title. In fairness, we should caution you that these figures have not been normalized for

either demographic or program differences and are thus more "suggestive than "conclusive."

Table 2

Comparison of Selected Medicaid Costs Per Recipient Demonstrates That Restrictive Drug Programs May Be Counterproductive.

(ISOLATED SLIGHT SAVINGS IN DRUG PROGRAMS ARE OFTEN MORE THAN OFFSET BY HIGHER COSTS IN OTHER CATEGORIES.)



Sources FY73 NCSS 84 report FY74 SRS Forms 2082
DHEW Fiscal Division reports (FY73 and FY74), "Expenditures for Public Assistance Programs Approved Under Titles I through XIX"

We also have heard the political question that our utilization management methods must surely provoke recipient discontent. Last June, an effort was made to test this supposition--the test being an independently commissioned opinion poll by Louis Harris Associates in Texas and California. We would like to highlight the results from a few key survey questions in Table 3.

While I do not claim to be an expert on sampling statistics, my instincts in viewing these data support the statisticians' conclusion: there is somewhat more support for the total Medicaid program among the general public in Texas, but the recipients and the taxpayers of both States are equally pleased with their respective Medicaid drug programs. Let us repeat this important point in different words: despite our utilization management system, our recipients and our taxpayers are at least as well satisfied with our drug program as the California recipients and taxpayers are with the Medi-Cal drug program that does not have the utilization-control emphasis of our program.

TABLE 3

PARTIAL SUMMARY OF LOUIS HARRIS ASSOCIATES

OPINION POLL

(Data collected June, 1977)

Question: Do you generally approve or disapprove of Medicaid?

	---Medicaid---		---Non-Medicaid---	
	Calif.	Texas	Calif.	Texas
Sample	(200)	(200)	(501)	(507)
APPROVE	93%	90%	62%	70%
Disapprove	4%	4%	19%	16%
Not sure	4%	7%	19%	14%

Question: Rate the extent of Medicaid's coverage for Rx drugs.

	---Medicaid---		---Non-Medicaid---	
	Calif.	Texas	Calif.	Texas
Sample	(200)	(200)	(501)	(507)
EXCELLENT	16%	14%	5%	2%
PRETTY GOOD	25%	26%	9%	12%
Adequate	19%	15%	9%	9%
Only fair	14%	17%	8%	10%
Poor	13%	14%	4%	6%
Don't know	14%	16%	65%	61%

We flatter ourselves to the extent of concluding that some of you, upon seeing these measures of our program's performance, may want to try some of our ideas in your programs. We wish we could offer you simple recipes which, after you had followed the step-by-step instructions, could implement our techniques overnight.

It doesn't work that way.

In most of the Medicaid drug programs whose data we have had the opportunity to examine, the step that was most needed was also the hardest to do: institute effective utilization management and fraud detection. How often have price-controls been recommended out of desperation, lack of adequate staff and budget for other controls, or the political imperative to do something--even if the "something" is to substitute motion for achievement!

As close as we can come to a recipe is to restate the three elements we have found to be indespensible in operating an effective utilization management and fraud detection system:

1. Well designed computer systems operated by adequately staffed and compensated computer personnel that are capable of producing appropriate provider and recipient profiles.
2. Professionally competent regionalized field auditing teams—with direct computer links to the key computer-generated profiles--that form the first line in our management-by-exception system.

3. The trust and cooperation of the provider groups, especially with regard to their willingness to exert peer discipline in appropriate circumstances.

Unless you have the luxury of a lavish staff budget, you no doubt have distinctly limited resources available to accomplish an ambitious cost-control objective. The lesson from Texas, as we see it, is that you are largely wasting your scarce manpower on price-control schemes and that you would be far better advised to discard the political "conventional wisdom" and really do a job on the utilization and fraud abuses that are inhibiting your ability to deliver a vital service to deserving recipients.

If it would be of any help to you, we are planning to have available, free of charge, in the first quarter of next year, a complete, detailed systems description of the Texas Medicaid drug program. We hope to include program flows, sample report formats, organization and staffing detail--in sum, enough detail for the administration and computer personnel in your own organizations to implement whichever of our techniques might make sense to you.

I welcome your questions and comments.

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DOLLAR LIMITS AND PRESCRIPTION LIMITS

According to available information, Oklahoma is the last State to add a drug program to its Title XIX plan.

Joint Senate Resolution Number 9 which passed the Oklahoma Senate on March 4, 1975, after passage in the House on February 25, 1975, and was signed by Governor David L. Boren on March 10, 1975, provided for a Vendor Drug Program for recipients of assistance payments and authorized the Department of Institutions, Social and Rehabilitative Services, to establish a drug program. The drug program is administered under the regulations adopted by the Oklahoma Public Welfare Commission. The State assistance fund is used in an amount determined to be needed and available up to, but not more than $3 million. With Federal matching the approximate total expenditure budgeted is $9 million.

Listed below are some of the program limitations presented by the Department's Medical Advisory Committee and subsequently adopted by the Public Welfare Commission:

1) One of the first policies adopted by the Welfare Commission was that the program would not make payment to prescribing practitioners who choose to provide their own pharmaceuticals.

2) The program initially covers only the following categories of drugs:

A) Anti-infectives

1. Antibiotics

2. Antibacterials (Penicillin)

3. Bacteriostatic Agents (Sulfas)

B) Analgesics

1. Narcotic

2. Non-narcotic

C) Cardiovascular

D) Antineoplastics

E) Insulin

F) Family Planning

3) The program is limited to 3 Rxs per month per eligiole recipient.

4) Rx quantities are limited to 34-day supply or 100 dosage units, whichever is greater.

5) Refills shall be provided only if authorized by the prescriber no more than five (5) times within a six (6) month period.

6) The maximum dispensing fee is $2.50 per Rx but no more than charge to the general public.

The program was implemented on July 1, 1975. The first fiscal year the total program cost was $3.6 million. The second fiscal year the total expenditure was $5.1 million. Effective February 1, 1977, four (4) additional categories were added:

1) Broncho-Dilators/Antiasthmatics; 2) Antiarthritics; 3) Anti-gout; and 4) Anticonvulsants.

Expenditures for first fiscal quarter (3 months) 1978 ran $1.3 million which projects to $5.2 million for the year.

I have computer summaries for distribution.

If you desire to compare the Oklahoma Program with your State, I can provide the following data.

We provide prescriptions to approximately 30,000 recipients each month (unduplicated) who receive an average of 1.8 prescriptions per month at an average current cost of $7.65 per prescription. The cost of processing the claim for the Vendor Drug Program runs approximately $.19 per prescription.

Oklahoma uses a computer scanable claim form which allows for 28 (twenty-eight) prescriptions for each claim. The error ratio is less than one percent, therefore, the acceptance by the pharmacy providers and the subsequent participation has been exceptional. The scanable form allows for maximum data input which facilitates 'massaging' of data for computer reports and reviews in every way regulations require.

WORKSHOP C - CONSTRUCTION OF DISPENSING FEE SURVEYS AND THEIR USES

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IOWA DISPENSING FEE SURVEYS

The Iowa Medicaid Program was inaugurated in July, 1967. At that time fees to be paid to providers of service were determined based on a variety of factors, including previous experience in prior State medical programs, conferences with provider advisory groups, and information from other states. The Iowa Medicaid dispensing fee was established at $2.00 per prescription. Little consideration was given to changing the fee during the next few years as in 1969 Iowa experienced a Medicaid funding crisis and had to discontinue the medically needy program. In the early 1970's, due to cost increases and the rate of inflation, the Iowa Pharmaceutical Association approached the Department of Social Services relative to a fee increase. While it was apparent that costs had increased as had the Consumer Price Index, neither the Association nor the Department had any data on which to make a decision relative to raising fees. To solve this problem a contact was made with the University of Iowa College of Pharmacy relative to conducting a dispensing fee survey. A proposal was made to the Department and a contract with the College was let for a study entitled "An Assessment of Prescription Fees Among Iowa Pharmacies." The final report of the study was received by the Department in late 1973.

The objective of this study was to determine the average prescription fees of Iowa pharmacies for private paying patients and the relationship of these fees to the following:

1. The Medicaid approved fee,
2. The size of the town in which the pharmacy was located,
3. The pharmacy's prescription volume, and
4. The concentration of pharmacies per thousand people residing in the community.

One hundred (100) community pharmacies in Iowa were randomly selected from the universe of all community pharmacies in Iowa numbering approximately 700. Each cooperating pharmacy was then audited between December, 1972 and April, 1973. The data obtained from each pharmacy consisted of:

1) The number of prescriptions filled daily,
2) The number of full time pharmacists employed,
3) The wholesalers with whom they did business,
4) The manufacturers from whom they bought direct,
5) Whether or not the cost marked on the bottle in inventory was invoice cost,
6) Whether or not they purchased jointly with other pharmacies,
7) Size of town where the pharmacy was located, and
8) Number of other pharmacies in town.

Then the most recent 300 prescriptions filled for private paying patients which would have been reimbursed under the

Medicaid program were audited. The following information was collected on each prescription sampled:

Drug name, drug strength, dosage form, quantity, price, cost of stock bottle of drug on shelf, unit size of stock bottle of drug on shelf.

The data was analyzed and it was determined that the mean fee among the sampled pharmacies was computed to be $2.27 per prescription. The study also determined that there is a significant difference in fees among pharmacies of various prescription volumes. High volume pharmacies had significantly lower fees than low volume pharmacies. However, there was no significant difference in fees among pharmacies in varying town size. Pharmacies located in small towns had fee structures which were not significantly different from pharmacies located in large towns. There was also no interaction between town size and prescription volume in relation to the fee charged.

As a result of this study, in July, 1974 the Iowa Medicaid Program increased the prescription fee to $2.15 per prescription. A fee of $2.27 was not awarded in order to offset the differential of actual acquisition cost from wholesale cost of drugs which was used as the Medicaid program maximum.

Then again, during the year 1976, the Iowa Department of Social Services approved and funded a proposal made by the University of Iowa College of Pharmacy entitled "Cost and Fees for Prescriptions Filled Among Pharmacies of Various Types,

services and Prescription Volumes." The fee portion of the study was conducted in a manner similar to the 1973 project in order to obtain an indication of the trend in pharmacy fees over the three year time period. An additional study from the 1973 survey on the cost of filling prescriptions was added at this time. Approximately two thirds of the pharmacies from the 1973 sample were retained in the 1976 sample. Whenever a pharmacy from the 1973 sample was omitted in the 1976 study, it was replaced with a pharmacy which matched it on the basis of ownership and location characteristics. Each cooperating pharmacy was then audited between December, 1975 and April, 1976. The data obtained from each pharmacy consisted of the number of new and refill prescriptions dispensed daily, the wholesalers with whom they did business, the manufacturers from whom they bought direct, whether or not the cost mark on the bottle in inventory was invoice cost, and the size of the community where the pharmacy was located. Then the most recent 300 new prescriptions dispensed for private paying patients were audited. The following information was collected on each prescription sample:

> Drug name, drug strength, drug dosage form, quantity dispensed, price of the prescription, cost of the stock bottle on the shelf, unit size of the stock bottle on the shelf.

The results of this fee study showed there had been a 20.3% increase in the fee (gross margin) in the three year time span since the 1973 study. The increase in mean pharmacy fees (gross margin) was considerably less over the same time period than the Consumer Price Index for all items, 20.3% versus 29%. The mean fee in this study was determined to be $.73 per prescription.

The study also revealed that the discount pharmacies have the lowest fees and professional pharmacies have the highest. However, these differences in fees were not extensive enough to be statistically significant. The study also indicated that the higher services pharmacies had higher fees than low service pharmacies. These also, however, were not extensive enough to be statistically significant. It also showed that high prescription volume pharmacies have lower fees than the low prescription volume pharmacies. However, the differences were not extensive enough to be statistically significant.

The cost portion of the study was submitted concurrently with the report of pharmacy fees. It was determined that only 70 of the 100 pharmacies had sufficient data to allow a complete cost analysis. This sample was determined to be representative of the universe in terms of distribution by town size and ownership characteristics. Statistics pertaining to the cost of filling Title XIX prescriptions were computed. In order to obtain an objective cost, the cost of filling a private paid prescription was used as a baseline figure. In addition, certain cost factors which are unique to Title XIX prescriptions, were

added to the base cost to account for the time which it takes to file and receive payment for Title XIX prescriptions. Finally, a usual and customary profit margin derived from the 1976 Lilly Digest averages was added. Theoretically, if a Title XIX prescription was to account for a proper portion of the store's cost and profit, the average fee should equal the average Title XIX prescription cost plus the usual and customary profit. In this study, the average fee was $2.73, the average Title XIX cost plus profit was $2.69. The $2.69 cost figure included base cost (salaries plus other direct and variable expenses) $2.0950, Title XIX claim filing cost, $.1944, Title XIX opportunity cost, $.0400, and usual and customary profit, $.3617.

The study also revealed that discount pharmacies do have the lowest costs and that professional pharmacies have the highest. These differences were not significant at the .05 level. The study also showed that high prescription volume pharmacies have lower cost than low prescription volume pharmacies. These differences were extensive enough to be statistically significant. As with high prescription volume pharmacies, high store volume pharmacies also have lower costs than low store volume pharmacies. These differences were also extensive enough to be statistically significant. Higher services pharmacies were determined to have a higher average cost. However, the differences were not extensive enough to be statistically significant. Statistically significant differences in costs were observed among pharmacies of

various town sizes. However, these differences were due to higher mean costs in just one population category (2,001-5,000) rather than any overall trend. There appeared to be no differences in mean cost for pharmacies open for varying numbers of hours.

When these cost results were compared to the fee study the case for a uniform fee appeared to be quite strong. The only strong characteristic which one may consider for a variable fee is prescriptive volume. However, this variable was not statistically significant in all three studies. Therefore, the uniform fee still appeared justified.

In the Department of Social Services appropriations bill passed by the State Legislature for the fiscal year beginning July 1, 1977, the Iowa Legislature included a statement of intent that the Department increase the fee for prescriptions provided under the Medicaid program to $2.55 per prescription. While this increase did not equal the fee figure of $2.73 determined by the study, the study certainly had an overall effect of providing data to support an increase in the fee. We would anticipate continuing this methodology for conducting pharmacy fee surveys.

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APPENDIX

A STUDY OF THE IMPACT OF INAPPROPRIATE AMBULATORY DRUG THERAPY IN HOSPITALIZATION

A STUDY OF THE IMPACT OF INAPPROPRIATE AMBULATORY DRUG THERAPY ON HOSPITALIZATION

HEALTH
INFORMATION
DESIGNS, INC.

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'The opinions and conclusions contained herein are those of Health Information Designs, Inc., and not necessarily those of the Department of Health, Education and Welfare.'

A STUDY OF
THE IMPACT OF INAPPROPRIATE
AMBULATORY DRUG THERAPY ON HOSPITALIZATIONS

FINAL REPORT

HEALTH INFORMATION DESIGNS, INC.
WASHINGTON, D.C.

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TABLE OF CONTENTS

I. INTRODUCTION 1

II. STUDY DESIGN 2

III. DISCUSSION OF RESULTS 8

IV. CONCLUSION 13

APPENDIX A. DEFINITION OF TERMS 15

APPENDIX B. A SELECTION OF ILLUSTRATIVE CASE REVIEWS 17

APPENDIX C. TABLES

1. STUDY POPULATION BY TYPE OF HOSPITAL 22
2. HOSPITAL DISCHARGE DIAGNOSIS RECORD RECONCILIATION 23
3. GUIDELINES FOR EXCLUDING PROBABLE NON-DRUG RELATED HOSPITAL ADMISSIONS 24
4. MINNESOTA: NUMBER OF INAPPROPRIATE DRUG THERAPIES ASSOCIATED WITH PATIENT HOSPITALIZATIONS CLASSIFIED BY AGE AND SEX 25
5. ARKANSAS: NUMBER OF INAPPROPRIATE DRUG THERAPIES ASSOCIATED WITH PATIENT HOSPITALIZATIONS CLASSIFIED BY AGE AND SEX 26
6. CALIFORNIA: NUMBER OF INAPPROPRIATE DRUG THERAPIES ASSOCIATED WITH PATIENT HOSPITALIZATIONS CLASSIFIED BY AGE AND SEX 27
7. MINNESOTA: IMPACT OF POSSIBLE INAPPROPRIATE DRUG THERAPIES ON THE NUMBER OF HOSPITAL ADMISSIONS 28
8. ARKANSAS: IMPACT OF POSSIBLE INAPPROPRIATE DRUG THERAPIES ON THE NUMBER OF HOSPITAL ADMISSIONS 29
9. CALIFORNIA: IMPACT OF POSSIBLE INAPPROPRIATE DRUG THERAPIES ON THE NUMBER OF HOSPITAL ADMISSIONS 30
10. MINNESOTA & ARKANSAS: AVERAGE LENGTH OF HOSPITAL STAY FOR POSSIBLE DRUG-RELATED HOSPITAL ADMISSIONS 31
11. CALIFORNIA: AVERAGE LENGTH OF HOSPITAL STAY FOR DRUG-RELATED HOSPITAL ADMISSIONS 32

HEALTH
INFORMATION
DESIGNS, INC.

TABLE OF CONTENTS
(continued)

APPENDIX C. TABLES (continued)

12. MINNESOTA: NUMBER OF POTENTIALLY AVOIDABLE INAPPROPRIATE DRUG THERAPIES ASSOCIATED WITH HOSPITALIZATIONS 33

13. ARKANSAS: NUMBER OF POTENTIALLY AVOIDABLE INAPPROPRIATE DRUG THERAPIES ASSOCIATED WITH HOSPITALIZATIONS 34

14. CALIFORNIA: NUMBER OF POTENTIALLY AVOIDABLE INAPPROPRIATE DRUG THERAPIES ASSOCIATED WITH HOSPITALIZATIONS 35

15. MINNESOTA: TYPES OF POSSIBLY INAPPROPRIATE DRUG THERAPIES ASSOCIATED WITH HOSPITALIZATIONS CLASSIFIED BY DIAGNOSTIC CATEGORY 36

16. ARKANSAS: TYPES OF POSSIBLY INAPPROPRIATE DRUG THERAPIES ASSOCIATED WITH HOSPITALIZATIONS CLASSIFED BY DIAGNOSTIC CATEGORY 37

17. CALIFORNIA: TYPES OF POSSIBLY INAPPROPRIATE DRUG THERAPIES ASSOCIATED WITH HOSPITALIZATIONS CLASSIFIED BY DIAGNOSTIC CATEGORY 38

18. MINNESOTA: PHARMACEUTICAL PRODUCTS ASSOCIATED WITH POSSIBLE DRUG THERAPY-RELATED HOSPITALIZATIONS CLASSIFIED BY DIAGNOSTIC CATEGORY..... 39

19. ARKANSAS: PHARMACEUTICAL PRODUCTS ASSOCIATED WITH POSSIBLE DRUG THERAPY-RELATED HOSPITALIZATIONS CLASSIFIED BY DIAGNOSTIC CATEGORY 40

20. CALIFORNIA: PHARMACEUTICAL PRODUCTS ASSOCIATED WITH POSSIBLE DRUG THERAPY-RELATED HOSPITALIZATIONS CLASSIFIED BY DIAGNOSTIC CATEGORY 41

21. MINNESOTA & ARKANSAS: COST AND LENGTH OF STAY IMPACT OF POTENTIALLY AVOIDABLE INAPPROPRIATE DRUG THERAPIES ASSOCIATED WITH HOSPITALIZATIONS 42

HEALTH
INFORMATION
DESIGNS, INC.

TABLE OF CONTENTS
(continued)

APPENDIX C. TABLES (continued)

22. CALIFORNIA: COST AND LENGTH OF STAY IMPACT OF POTENTIALLY AVOIDABLE INAPPROPRIATE DRUG THERAPIES ASSOCIATED WITH HOSPITALIZATIONS 43

23. ARKANSAS: NUMBER OF INAPPROPRIATE DRUG THERAPIES INVOLVING MULTIPLE PHYSICIANS ASSOCIATED WITH HOSPITALIZATIONS 44

APPENDIX D. FIGURES

1. INITIAL DATA COLLECTION FORM 45

2. DRUG PROFILE EVALUATION FORM 46

APPENDIX E. SUPPORTING DOCUMENTATION

1. MINNESOTA TOP 10 PERCENTILE HOSPITALS 47

2. ARKANSAS TOP 10 PERCENTILE HOSPITALS 48

3. CALIFORNIA TOP 10 PERCENTILE HOSPITALS 49

4. NOMINAL GROUPING SESSION: DIRECTORY OF PARTICIPANTS 51

5. NOMINAL GROUPING SESSION: RELEVANT CRITERIA 53

6. SAMPLE MMIS DOCUMENTS
   A. MINNESOTA PROVIDER DETAIL REPORT 55
   B. MINNESOTA RECIPIENT HISTORY REPORT 56
   C. ARKANSAS PROVIDER DETAIL REPORT 57
   D. ARKANSAS RECIPIENT DRUG PROFILE REPORT 58
   E. CALIFORNIA LENGTH OF STAY DETAIL REPORT 59
   F. CALIFORNIA RECIPIENT HISTORY PROFILE 60

7. IMPACT OF POSSIBLY INAPPROPRIATE DRUG THERAPIES ON THE NUMBER OF HOSPITAL ADMISSIONS - BY INDIVIDUAL HOSPITAL
   A. MINNESOTA: URBAN TEACHING HOSPITAL 61
   URBAN NON-TEACHING HOSPITAL 62
   RURAL HOSPITAL 63

HEALTH
INFORMATION
DESIGNS, INC.

TABLE OF CONTENTS
(continued)

APPENDIX E. SUPPORTING DOCUMENTATION (continued)

7. IMPACT OF POSSIBLY INAPPROPRIATE DRUG THERAPIES ON THE NUMBER OF HOSPITAL ADMISSIONS - BY INDIVIDUAL HOSPITAL (continued)

B. ARKANSAS: URBAN TEACHING HOSPITAL 64
URBAN NON-TEACHING HOSPITAL 65
RURAL HOSPITAL 66

C. CALIFORNIA: URBAN TEACHING HOSPITAL 67
URBAN NON-TEACHING HOSPITAL 68
RURAL HOSPITAL 69

REFERENCES 70

ACKNOWLEDGMENT 72

INTRODUCTION

Although drug expenditures in state Medicaid programs rarely exceed ten percent of total expenditures (1), the outcomes of inappropriate, excessive, or therapeutically incompatible drug use may have a significant impact on the cost of providing physician, hospital, and nursing home services.

There are opposing viewpoints, however, as to the degree to which health care costs are adversely affected by inappropriate drug therapy. Research in this area has centered on the singular aspect of inappropriate drug therapy: adverse drug reactions (ADRs). (2) (3) (4) The majority of these studies examined only inpatient occurrences (5) (6), almost to the exclusion of outpatient drug therapy influences. One factor, primarily responsible for the limited investigation of the outpatient aspects of this subject, is the difficulty in obtaining accurate and complete data regarding outpatient drug purchases. In 1965, the Department of Health, Education and Welfare began an effort to assist states in the development of a Medicaid Management Information System (MMIS), or equivalent system. The Surveillance and Utilization Review (S/UR) component of this system provides essentially all data necessary for examining outpatient drug use histories. With some minor exceptions, S/UR provides for the generation of pharmacy, physician, hospital, and patient reports sufficient for comprehensive outpatient drug use evaluation and detection of characteristic patterns of medication misutilization.

Published reports relating the impact of ADRs on health care costs are somewhat conflicting. Some researchers have identified a significant level of occurrences with a marked cost ramification (2) (3). Others have failed to discover either a significant incidence of occurrence or significant cost contribution to the overall health care expenditure. (7)

Inappropriate drug therapy, however, is not characterized by a singular descriptor, but evolves from a plurality of contributing factors. Irrational product selection, medication overutilization, underutilization, and misutilization may result in drug therapy failures or complications leading to hospitalization. The aggregate impact of these unnecessary hospitalizations, may significantly affect both the quality of care and total program expenditures within Title XIX. The nature of the relationship between these variables is the subject of this study.

STUDY DESIGN

A census of Medicaid patients admitted during the period January through June, 1976, was selected for study, from each of three large Medicaid-serving hospitals in Arkansas and Minnesota. (Table 1)
Due to the large volume of patients admitted to the three hospitals selected from California (Table 1), a random sample of Medicaid patients

was obtained rather than a census. If the random selection process yielded a sample size smaller than the census sample obtained from the corresponding Minnesota or Arkansas hospitals, it was adjusted upward to equal the larger of the two state censuses. Admission and discharge data, including discharge diagnoses, was obtained for all patients in this sample using the MMIS Provider Detail Report. The accuracy of the diagnoses obtained from the Provider Detail Report was determined by reconciling a random sample of these reports with the patient's actual medical record. When possible, the record was verified against the actual handwritten notes of the attending physician. To be acceptable, each hospital sample could not exceed a ten percent error rate. A hospital exceeding this rate would be eliminated from the study, and another hospital selected. The results of the diagnosis record verification demonstrated that each hospital selected was within the maximal pre-set limit of inaccuracy. (Table 2)

Each discharge diagnosis was evaluated for the possibility of a 'drug therapy-related' etiology. A set of guidelines was developed to assist the reviewers (clinical pharmacists) in identifying those diagnoses which, for the purposes of this study, did not meet the criteria for exhibiting a possible drug therapy etiology. (Table 3) For all patients whose discharge diagnosis presented a possibility of being drug therapy-related, a drug history profile was generated for the six month period immediately preceeding the hospital admission. This data was obtained

from the Recipient Claim History Report (or equivalent). Over-the-counter products (if not covered by the drug program) and legend drugs purchased by the patients themselves did not appear on the drug history profile.

Each patient's drug profile was examined for evidence of possibly inappropriate drug therapy. Judgmental decisions regarding the inappropriateness of drug therapies were made consistent with:

1. The findings of two nominal grouping sessions conducted to define the most significant characteristics of inappropriate drug therapy. (8)
2. Current medical literature resources, particularly with reference to the clinical significance of ADRs, documented iatrogenic complications of therapy, standard indications, therapeutic doses, and durations of therapy. (9-14)
3. The background and experience of the project's two principal investigators (AAL, MLM) obtained through their management of a statewide drug utilization review (DUR) program encompassing approximately 500,000 beneficiaries. (15-17)

The input received from two nominal grouping sessions was adjusted for the data limitations inherent to MMIS, and provided the basis for designing the Drug Profile Evaluation Form. This form (Figure 1) allowed for the review of each patient's drug therapy from two perspectives: appropriateness of drug selection, and the nature of the drug use.

Profile review, from the perspective of drug selection, included:

1. The identification of drugs with high potential for iatrogenic induction of adverse effects.

2. The identification of drugs contraindicated because of the patient's apparent disease history.
3. The identification of drugs given in contra-indicated combinations.
4. The identification of drugs with known potential for clinically significant adverse reactions.

(See Appendix for definitions of specific terminology used.)

The six month drug profile, often, provided insight into the patient's pre-existing chronic conditions, and allowed the reviewer to infer certain potential drug therapy/disease incompatibilities. Evaluating the likelihood of a drug-related hospital admission, profile reviewers considered the reported clinical manifestations (desirable and undesirable) of the therapeutic agents prescribed relative to (a) the duration of treatment, (b) dosage and frequency of medication use, and (c) the treatment's proximity to the hospital admission. In profiles where a chronic condition was evident prior to hospitalization (as exhibited by the presence of standard maintenance drugs), newly acquired drugs contraindicated because of the apparent pre-existing condition were noted as 'possibly inappropriate'. If the discharge diagnosis corresponded to an exacerbation of a pre-existing condition, a 'possible drug therapy-related' hospitalization was noted. Likewise, if the patient was receiving a contraindicated combination of drugs, a 'possibly inappropriate' drug therapy was noted. If this drug use was therapeutically related and proximal to the hospital admission, a 'possible drug-related' hospitalization was noted. Regimens consisting of drugs with significant potential for iatrogenic misadventure, or with a

high incidence of ADRs, were noted as inappropriate therapies only when the discharge diagnosis was related to respective adverse effects.

Drug profiles were also evaluated for possible inappropriateness of therapy relative to their utilization characteristics. The reviewers examined each profile for evidence of possible overutilization or under-utilization. The utilization pattern was evaluated relative to (a) the duration of therapy, (b) dosage and frequency of medication use, and (c) proximity to hospitalization. Reviewing the dates of service (DOS) in relationship to the quantity dispensed, patterns of possible patient non-compliance (underutilization) could be detected, and were noted as being 'possibly inappropriate'. A hospital admission for a condition being maintained by the underutilized drug, was recorded as being 'possibly drug-related'. Conversely, where profiles indicated that drugs with a high potential for iatrogenic complications or for adverse reactions were being dispensed (and presumably consumed) in excessive amounts (as exhibited by both quantity and refill frequency), this therapy was noted as being 'possibly inappropriate'. A subsequent hospitalization, reflecting a condition characteristic of overutilization of these drugs, was noted as 'possibly drug-related'.

Where the data was available, the reviewers related both the incidence of 'possibly inappropriate' drug therapy and 'drug-related' hospital admissions to the number of different physicians concurrently involved in

the patient's drug therapy regimens.

The reviewers were asked to predict, for those profiles exhibiting drug therapy-related hospital admissions, to what extent conventional DUR intervention might have prevented the drug therapy-related hospital admission. The principal criteria used in this subjective determination was the existence of a definitive pattern of drug therapy over a period in excess of sixty days.

In order to reduce the inter-rater bias relative to the identification of inappropriate drug therapies and drug therapy-related hospitalizations, only those cases where both reviewers' independent evaluations concurred were considered for analysis.

A representative sample of cases exhibiting possibly inappropriate drug therapies contributing to subsequent hospitalizations was reviewed independently by a clinical pharmacologist and a practicing internist. Cases viewed by the physician reviewers as being questionably significant were excluded from consideration.

DISCUSSION OF RESULTS

The results of this study are summarized in the Tables found in the Appendix of this report. Significance, where applicable, was determined at the .05 level.

Table 2 summarizes the results of the MMIS/hospital medical record verification phase of this study. These results reveal a relatively low (less than 7%) average error rate in each state. Errors most often observed involved 'fitting' actual diagnoses into International Classification of Diseases, Adapted (ICDA) categories.

Tables 4, 5, and 6 identify the incidence of possible drug therapy related hospitalizations relative to age and sex of the patient. In each state, the total incidence of drug-related hospitalizations appeared to be higher for women than men. Seventy-seven percent of the suspected drug-related hospitalizations in California involved female patients, 70% involved females in Arkansas, and 54% involved females in Minnesota. Arkansas showed a higher incidence of drug-related hospitalizations among patients below the age of 50. Minnesota and California both showed a higher incidence of drug-related hospitalizations among patients over the age of 50.

Tables 7,8, and 9 show the percentage of hospital admissions attributable to possibly inappropriate drug therapies. This table also identifies the relative ordering of the specific types of therapy problems. Minnesota showed the highest incidence of drug therapy-related hospitalizations (7.22%), followed by Arkansas (4.75%) and California (4.10%). Arkansas and California appear to have a significantly lower incidence of drug therapy-related hospitalizations than Minnesota. Analysis of the rank ordering of the types of inappropriate drug therapies associated with hospitalization, in all three states, shows that the relative ordering was highly similar. The four most frequently occurring drug therapy-related problems (ADR's, therapies contraindicated by diagnosis, underutilizations, and adverse effects of drugs associated with overdoses and drug dependency) accounted for over 70% of all drug therapy-related hospitalizations.

The average length of stay (LOS) associated with drug therapy-related hospitalizations for each of the three states studied is presented in Tables 10 and 11. The 'difference between the mean' test was applied to each state's results, yielding the following observations:

1. Average length of stays for hospitalizations attributable to underutilizations appeared to be similar for all three states.
2. Arkansas and California appeared to have a lower average LOS for hospitalizations resulting from overutilizations than did Minnesota.

3. Iatrogenic complications of therapy appeared to require a lower average LOS in California than in Minnesota. Arkansas' average LOS fell between those of California and Minnesota.
4. Average length of stays for hospitalizations resulting from contraindicated combinations of drugs appeared to be similar for Minnesota and Arkansas. California's average LOS in this category was skewed due to an excessive standard deviation.
5. Both Arkansas and California had lower average length of stays for admissions due to drug therapies contraindicated by diagnosis than Minnesota.
6. Average length of stays for hospitalizations resulting from adverse reactions appeared to be similar for all three states.
7. Hospitalizations resulting from drug overdoses or drug dependency showed lower average length of stays in Arkansas than in either Minnesota or California.

Tables 12,13, and 14 show the number of hospitalizations associated with inappropriate drug therapies which may have been avoided by drug utilization review (DUR) intervention. Adjusting for the hospital admissions due to drug overdoses and drug dependence (which are generally outside the purview of conventional DUR programs), 65% of the drug therapy-related hospitalizations may have been avoided.

It must be pointed out, however, that the degree to which these inappropriate drug therapies could have been avoided is dependent on both the sophistication of the DUR process, as well as the receptivity of the provider groups to the observations made by the DUR body. The predictions cited above assume the presence of an optimal DUR environment.

Tables 15, 16, and 17 identify organ system disease classes associated with specific types of inappropriate drug therapy. Analysis of these tables reveal:

1. The greatest number of hospitalizations associated with inappropriate drug therapies involve the cardiovascular or cerebrovascular systems (39%). Twenty percent of the drug therapy-related hospitalizations involved the central and peripheral nervous system. Therapies affecting the gastrointestinal tract accounted for 12% of the drug therapy-related hospital admissions.
2. Cases of underutilization and drug therapies contraindicated by diagnosis contributed the greatest to hospitalizations involving the cardiovascular system (36% of hospitalizations resulted from drug therapies contraindicated by diagnosis, and 25% due to underutilization).
3. Iatrogenic complications of therapies appeared most often to be associated with gastrointestinal disorders.
4. Overutilization appeared most often to be associated with hospitalizations involving the central nervous system.
5. Overall, drug therapies identified as being contraindicated by diagnosis was most often (38%) associated with drug therapy-related hospitalizations. Following this category was adverse drug reactions (21%), and underutilizations (20%). The aggregate contribution of the other types of inappropriate drug therapies constituted the remaining 21%.

The pharmaceutical products associated with inappropriate drug therapies identified in this study are listed in Tables 18, 19, and 20. These drugs represent only twenty therapeutic classes. This accounts for less than 20% of the 115 therapeutic classifications of drugs established by the United States Pharmacopeia.

An outcome of inappropriate drug therapy, measured in terms of costs of hospital stay, revealed some noteworthy observations (Tables 21 and 22). In Minnesota, the number of hospital admissions associated with possible inappropriate drug therapies accounted for 1,878 patient hospital days. Using the 1976 per diem cost from each of the hospitals selected from this state, these patient hospital days represented $197,574. Based on the criteria discussed earlier, by which the reviewers predicted the possibility of DUR intervention preventing these inappropriate drug therapies, 1,078 patient hospital days (57%) may have been avoided, accounting for a potential savings of $112,350. In Arkansas, of the 813 patient hospital days attributed to possibly inappropriate drug therapy (representing $85,969 in Medicaid expenditures), 354 days may have been avoided, exhibiting a potential savings of approximately $35,800. California's drug therapy-related hospitalizations accounted for 648 patient days (representing $98,660), of which 301 days may have been avoided, representing a potential savings of $45,778.

Table 23 identifies the number of drug therapy-related hospital admissions involving multiple physician drug therapies. In Arkansas (the only state whose MMIS report displayed physician identification numbers), 28% of the drug therapy-related hospitalizations involved multiple physician drug therapies. Fifty-five percent of these multiple physician therapies involved admissions for drug therapies contraindicated to the patient's pre-existing condition.

CONCLUSIONS

The identification of inappropriate drug therapies associated with subsequent hospitalization required the initial exclusion of certain hospital admissions that lacked an apparent direct relationship to outpatient drug therapy. There are inherent limitations in this selective exclusion procedure which may have eliminated some hospital admissions which, in actuality, may have had a drug therapy association. The results, therefore, identified by this study, may be viewed conservatively in light of those admissions for which prior drug therapy histories were not examined.

Only a limited amount of patient medical information was available to the reviewers from which to retrospectively reconstruct patient medical histories. Other variables, not identifiable from the resources available to this study, may have influenced patient hospitalizations to an equivalent, or greater extent than the observed drug therapy. Therefore, it must be emphasized that the association made between inappropriate drug therapy and subsequent hospitalization should be considered only a possible relationship.

The conclusions derived from this study can be summarized as follows:

1. Inappropriate outpatient drug therapy can contribute to the need for subsequent hospitalization.
2. A significant number of hospitalizations resulting from inappropriate outpatient drug therapy can be avoided by drug utilization review intervention.
3. Pharmaceutical products, representing only a limited number of therapeutic classes, appear to play a major role in drug therapy-related hospitalizations.
4. Studies limited to measuring adverse drug reactions significantly under-represent the actual impact inappropriate drug therapies have on the total cost of providing health care services.
5. The cost effectiveness of drug utilization review programs should be measured in terms of its impact on a program's hospitalization costs, rather than being limited to demonstrating cost savings exclusively within the program's drug budget.

The results of this study provide an insight into the impact of inappropriate drug therapy on hospitalization. Further investigations into this area should be undertaken in other states, to more clearly reflect the national significance of this factor's contribution to total Medicaid program cost.

DEFINITION OF TERMS

Drug Therapy

Those aspects of drug usage pertaining to the prescription, product selection, route of administration, and pattern of utilization of a pharmacologic agent.

Inappropriate Drug Therapy

Drug usage patterns exhibiting:

(a) underutilization
(b) overutilization
(c) iatrogenic adverse effects
(d) contraindicated drug combinations
(e) drugs contraindicated by diagnosis
(f) drugs contributing to an adverse reaction
(g) drugs contributing to an adverse effect resulting from overdose or dependency

Underutilization

Characterized by a failure to use medication in sufficient quantities or appropriate intervals consistent with generally accepted therapeutic regimens required to achieve the desired pharmacologic effect.

Overutilization

Characterized by the use of medication in excess of maximum therapeutic dosage regimens, beyond which no beneficial pharmacologic effect can be achieved.

Iatrogenic Effect

The induction of an adverse effect, by the extended use of a drug with a known potential to produce this effect, in a patient with no prior related medical history.

Contraindicated Combination

Concomitant use of two or more drugs whose combined pharmacologic action produces an undesirable therapeutic effect.

Contraindicated by Diagnosis

The use of a drug when a condition or disease exists which precludes the use of that drug or requires that special consideration be given to factors which may exacerbate the existing condition or disease, interfere with current treatment, or produce new injury.

Contributing to an Adverse Reaction

A drug therapy--with a known potential to produce an undesirable effect--initiated within sixty days prior to a hospital admission related to this effect, in a patient with no prior related medical history.

Adverse Drug Effects and Drug Dependency

A discharge diagnosis (ICDA classification) assigned by the attending physician, generally relating to overdoses or drug dependency. (This category was used only when drug therapies, resulting in this type of admission, did not appear on the patients' drug profiles.)

A SELECTION OF ILLUSTRATIVE CASE REVIEWS

Case #1

A seventy-one year old male nursing home patient, with a history of ischemic heart disease, was admitted to the hospital for disorientation, secondary to chronic brain syndrome. During the four month period prior to this hospitalization, the patient received concomitantly, Lomotil, Doriden 500mg., and Tuinal 1½gr.. The patient received routinely a sixty day supply of Doriden and Tuinal in twenty day intervals. Lomotil therapy was given in quantities consistent with the refill intervals.

POSSIBLE INAPPROPRIATE DRUG THERAPY NOTED: YES

Rationale - Possible inappropriate drug therapy was noted due to the apparent overutilization of Doriden and Tuinal, and the potential synergistic sedative effect of Lomotil.

POSSIBLE DRUG-RELATED HOSPITAL ADMISSION: YES

Rationale - This hospital admission may have occurred due to the exacerbation of a pre-existing condition (chronic brain syndrome) through an apparent overutilization of drugs, whose side-effects have been associated with the condition precipitating this hospital admission.

HOSPITAL LENGTH OF STAY: 14 days

Case # 2

A ninety-three year old ambulatory female patient was admitted to the hospital of March 8, 1976, for gastrointestinal hemorrhage. The drug profile routinely shows that this patient received Indocin 25mg for the six months immediately preceeding the hospital admission. The only other medications taken by this patient on a routine basis included Quinine Sulfate 5gr. and Naphcon eye drops 0.13%.

POSSIBLE INAPPROPRIATE DRUG THERAPY NOTED: YES

Rationale - A possible inappropriate drug therapy was noted due to the extended and continuous period of time this elderly patient received a drug (Indocin) having a high incidence rate of gastrointestinal disorders.

POSSIBLE DRUG-RELATED HOSPITAL ADMISSION: YES

Rationale - A possible drug-related hospital admission was noted due to the relationship between the reported adverse effects of prolonged indomethacin therapy and the cause of hospitalization.

HOSPITAL LENGTH OF STAY: 36 days

Case #4

A seventy year old ambulatory patient was hospitalized on February 17, 1976, for cardiac arrhythmias and a history of ischemic heart disease. The patient, who was routinely taking Orasone 5mg, was placed on Lanoxin .125mg, Diuril 500mg, and Pronestyl 500mg, ten days prior to hospitalization. Except for intermittent anti-gout therapy (Zyloprim), the patient received no other medications prior to hospitalization.

POSSIBLE INAPPROPRIATE DRUG THERAPY NOTED: YES

Rationale - A possible inappropriate drug therapy was noted due to the absence of potassium supplementation in a drug therapy regimen exhibiting a high potential for potassium depletion, particularly, when cardiac arrhythmia is suspect (Pronestyl therapy).

POSSIBLE DRUG-RELATED HOSPITAL ADMISSION: YES

Rationale - A possible drug-related hospital admission was noted due to the relationship between a high potassium-depleting therapy regimen and the cardiac arrhythmia causing hospitalization.

HOSPITAL LENGTH OF STAY: 41 days

Case # 3

A seventy-four year old ambulatory male patient was admitted to the hospital on February 15, 1976, for diabetes mellitus with acidosis. Twenty-seven days prior to hospitalization the patient initiated a hydrochlorthiazide 25mg therapy, in addition to taking Diabinese 250mg. The drug profile displayed no other medications prior to the hospitalization.

POSSIBLE INAPPROPRIATE DRUG THERAPY NOTED: YES

Rationale - A possible inappropriate drug therapy was noted due to the initiation of a thiazide diuretic therapy with potential diabetogenic properties to a patient with a pre-existing diabetic condition.

POSSIBLE DRUG-RELATED HOSPITAL ADMISSION: YES

Rationale - This hospital admission occurred for a condition for which the patient received a drug (within 30 days of admission) known to exacerbate this condition.

HOSPITAL LENGTH OF STAY: 18 days

Case # 5

A fifty year old ambulatory female patient was hospitalized on March 13, 1976, for convulsions and manic-depressive illness. The drug profile revealed this patient to be taking routinely, and concomitantly, Trilafon 4mg and reserpine .25mg. This therapy continued up until the time of hospital admission. Other drugs appearing on this patient's profile on a non-routine basis include: Vio-Geric, Aldactazide, Flagyl tablets, Colrex expectorant, and Ethril 250mg.

POSSIBLE INAPPROPRIATE DRUG THERAPY NOTED: YES

Rationale - A possible inappropriate drug therapy was noted due to the failure to discontinue reserpine therapy in the presence of a depressive condition.

POSSIBLE DRUG-RELATED HOSPITAL ADMISSION: YES

Rationale - Phenothiazine therapy, which may have been required due to the depressive side-effect of reserpine therapy, lowers the seizure threshold and may have contributed to the hospital admission.

HOSPITAL LENGTH OF STAY: 4 days

TABLE 1

STUDY POPULATIONS BY TYPE
OF HOSPITAL

	TOTAL HOSPITAL ADMISSIONS (MEDICAID) JAN 1976 THROUGH JUNE 1976
MINNESOTA	
URBAN TEACHING HOSPITAL	2,035
URBAN NON-TEACHING HOSPITAL	755
RURAL HOSPITAL	290
ARKANSAS	
URBAN TEACHING HOSPITAL	1,846
URBAN NON-TEACHING HOSPITAL	721
RURAL HOSPITAL	420
CALIFORNIA	
URBAN TEACHING HOSPITAL	1,720
URBAN NON-TEACHING HOSPITAL	680
RURAL HOSPITAL	655

TABLE 2

HOSPITAL DISCHARGE DIAGNOSIS
RECORD RECONCILIATION

	SAMPLE TESTED[1]	PER CENT ERROR
MINNESOTA		
URBAN TEACHING HOSPITAL	34	0
URBAN NON-TEACHING HOSPITAL	33	6
RURAL HOSPITAL	31	6
ARKANSAS		
URBAN TEACHING HOPSITAL	34	3
URBAN NON-TEACHING HOSPITAL	33	3
RURAL HOSPITAL	31	5*
CALIFORNIA		
URBAN TEACHING HOSPITAL	34	3
URBAN NON-TEACHING HOSPITAL	33	3
RURAL HOSPITAL	31	2

[1]SAMPLE SELECTED AT A .05 CONFIDENCE LEVEL USING AN EXPECTED ERROR RATE OF .1
*PSRO DETERMINED ERROR RATE

TABLE # 3

GUIDELINES FOR EXCLUDING PROBABLE NON-DRUG
RELATED HOSPITAL ADMISSIONS

1. THOSE HOSPITAL ADMISSIONS INVOLVING NORMAL PREGNANCY AND DELIVERY, VOLUNTARY ABORTIONS, ETC. .
2. THOSE HOSPITAL ADMISSIONS INVOLVING BODY TRAUMA OR INJURY (IE. AUTOMOBILE ACCIDENTS, HERNIA, WOUNDS, BROKEN BONES, ETC.).
3. THOSE HOSPITAL ADMISSIONS INVOLVING DIAGNOSTIC PROCEDURES (IE. BIOPSY, DIAGNOSTIC RADIOGRAPHY, ROUTINE CHECK-UPS AND PHYSICALS).
4. THOSE HOSPITAL ADMISSIONS INVOLVING VOLUNTARY SURGERY (IE. TUBAL LIGATIONS, VASECTOMY, PLASTIC SURGERY, ETC.).
5. THOSE HOSPITAL ADMISSIONS INVOLVING MAINTENANCE PROCEDURES (IE. RADIOTHERAPY, RENAL DIALYSIS, ETC.).
6. OTHER HOSPITAL ADMISSIONS WHICH IN THE REVIEWER'S PROFESSIONAL OPINION COULD NOT HAVE A PROBABLE DRUG THERAPY RELATED ETIOLOGY, OR FOR WHICH SUFFICIENT INFORMATION COULD NOT HAVE BEEN OBTAINED FROM WHICH TO PERFORM ADEQUATE REVIEW (IE. INFECTIONS, MENTAL DISEASE, ETC.)

TABLE # 4

MINNESOTA

NUMBER OF INAPPROPRIATE DRUG THERAPIES ASSOCIATED WITH PATIENT HOSPITALIZATIONS CLASSIFIED BY AGE AND SEX

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	TOTAL	SEX		AGE			
		MALE	FEMALE	0 - 20	21 - 50	51 - 64	OVER 65
UNDERUTILIZATION	31	17	14	1	13	6	11
OVERUTILIZATION	21	6	15	3	7	5	6
IATROGENIC	13	5	8	3	2	2	6
CONTRAINDICATED COMBINATION	6	4	2	0	0	2	4
CONTRAINDICATED BY DIAGNOSIS	53	18	35	1	13	9	30
ADVERSE REACTIONS	43	23	20	3	6	9	25
ADVERSE DRUG EFFECTS OR DRUG DEPENDENCY *	55	29	26	29	21	3	2
TOTAL	222	102	120	40	62	36	84

* REPORTED AS A DISCHARGE DIAGNOSIS

TABLE # 5

ARKANSAS

NUMBER OF INAPPROPRIATE DRUG THERAPIES ASSOCIATED WITH PATIENT HOSPITALIZATIONS CLASSIFIED BY AGE AND SEX

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	TOTAL	SEX		AGE			
		MALE	FEMALE	0 - 20	21 - 50	51 - 64	65 AND OVER
UNDERUTILIZATION	28	10	18	5	12	11	0
OVERUTILIZATION	4	2	2	2	0	2	0
IATROGENIC	6	0	6	1	2	2	1
CONTRAINDICATED COMBINATION	8	1	7	0	2	4	2
CONTRAINDICATED BY DIAGNOSIS	44	8	36	6	16	19	3
ADVERSE REACTIONS	22	9	13	4	5	10	3
ADVERSE DRUG EFFECTS OR DRUG DEPENDENCY *	30	12	18	18	8	2	2
TOTAL	142	42	100	36	45	50	11

* REPORTED AS A DISCHARGE DIAGNOSIS

TABLE 6

CALIFORNIA

NUMBER OF INAPPROPRIATE DRUG THERAPIES ASSOCIATED WITH PATIENT HOSPITALIZATIONS CLASSIFIED BY AGE AND SEX

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	TOTAL	SEX		AGE			
		MALE	FEMALE	0 - 21	21 - 50	51 - 64	OVER 65
UNDERUTILIZATION	14	3	11	3	5	3	3
OVERUTILIZATION	11	1	10	0	6	1	4
IATROGENIC	6	1	5	1	1	3	1
CONTRAINDICATED COMBINATION	4	1	3	0	0	3	1
CONTRAINDICATED BY DIAGNOSIS	44	13	31	3	17	11	13
ADVERSE REACTIONS	12	2	10	1	3	0	8
ADVERSE DRUG EFFECTS AND DRUG DEPENDENCY*	34	8	26	10	17	1	6
TOTAL	125	29	96	18	49	22	36

* REPORTED AS A DISCHARGE DIAGNOSIS

TABLE # 7

MINNESOTA

IMPACT OF POSSIBLE INAPPROPRIATE DRUG THERAPIES ON
THE NUMBER OF HOSPITAL ADMISSIONS

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	NUMBER OF HOSPITALIZATIONS	PER CENT OF TOTAL HOSPITALIZATIONS	RANK ORDER
UNDERUTILIZATION	31	1.01	4
OVERUTILIZATION	21	.68	5
IATROGENIC	13	.42	6
CONTRAINDICATED COMBINATION	6	.20	7
CONTRAINDICATED BY DIAGNOSIS	53	1.72	2
ADVERSE REACTIONS	43	1.40	3
ADVERSE DRUG EFFECTS AND DRUG DEPENDENCY *	55	1.79	1
TOTAL	222	7.21	

TOTAL NUMBER OF HOSPITALIZATIONS (N) EQUAL TO 3080

* REPORTED AS A DISCHARGE DIAGNOSIS

TABLE # 8

ARKANSAS

IMPACT OF POSSIBLE INAPPROPRIATE DRUG THERAPIES ON
THE NUMBER OF HOSPITAL ADMISSIONS

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	NUMBER OF HOSPITALIZATIONS	PER CENT OF TOTAL HOSPITALIZATIONS	RANK ORDER
UNDERUTILIZATION	28	.94	3
OVERUTILIZATION	4	.13	7
IATROGENIC	6	.20	6
CONTRAINDICATED COMBINATION	8	.27	5
CONTRAINDICATED BY DIAGNOSIS	44	1.47	1
ADVERSE REACTIONS	22	.74	4
ADVERSE DRUG EFFECTS AND DRUG DEPENDENCY *	30	1.00	2
TOTAL	142	4.75	

TOTAL NUMBER OF HOSPITALIZATIONS (N) EQUAL TO 2987

* REPORTED AS A DISCHARGE DIAGNOSIS

TABLE #9

CALIFORNIA

IMPACT OF POSSIBLY INAPPROPRIATE DRUG THERAPIES ON
THE NUMBER OF HOSPITAL ADMISSIONS

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	NUMBER OF HOSPITALIZATIONS	PER CENT OF TOTAL HOSPITALIZATIONS*	RANK ORDER
UNDERUTILIZATION	14	.47	3
OVERUTILIZATION	11	.36	5
IATROGENIC	6	.20	6
CONTRAINDICATED COMBINATION	4	.13	7
CONTRAINDICATED BY DIAGNOSIS	44	1.44	1
ADVERSE REACTIONS	12	.39	4
ADVERSE DRUG EFFECTS AND DRUG DEPENDENCY**	34	1.11	2
TOTAL	125	4.10	

* TOTAL NUMBER OF HOSPITALIZATIONS (N) EQUAL 3050

** REPORTED AS A DISCHARGE DIAGNOSIS

TABLE # 10

AVERAGE LENGTH OF HOSPITAL STAY FOR POSSIBLE
DRUG-RELATED HOSPITAL ADMISSIONS

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	MINNESOTA TOTAL	MINNESOTA AVERAGE LENGTH OF HOSPITAL STAY (DAYS)	ARKANSAS TOTAL	ARKANSAS AVERAGE LENGTH OF HOSPITAL STAY (DAYS)	SIGNIFICANT DIFFERENCE (.05)
UNDERUTILIZATION	31	7.22	28	5.46	NS
OVERUTILIZATION	21	5.90	4	3.00	S
IATROGENIC	13	9.53	6	6.50	NS
CONTRAINDICATED COMBINATION	6	9.33	8	6.25	NS
CONTRAINDICATED BY DIAGNOSIS	53	9.88	44	6.14	S
ADVERSE REACTIONS	43	9.86	22	8.18	NS
ADVERSE DRUG EFFECTS AND DRUG DEPENDENCY *	55	7.25	30	3.93	S

* REPORTED AS A DISCHARGE DIAGNOSIS

TABLE #11

AVERAGE LENGTH OF HOSPITAL STAY FOR POSSIBLE DRUG RELATED HOSPITAL ADMISSIONS

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	TOTAL DRUG RELATED HOSPITAL ADMISSIONS	CALIFORNIA AVERAGE LENGTH OF HOSPITAL STAY (DAYS)
UNDERUTILIZATION	14	5.21
OVERUTILIZATION	11	3.55
IATROGENIC	6	3.83
CONTRAINDICATED COMBINATION	4	10.50
CONTRAINDICATED BY DIAGNOSIS	44	5.09
ADVERSE REACTIONS	12	7.17
ADVERSE DRUG EFFECTS OR DRUG DEPENDENCY *	34	4.71
AVERAGE LOS FOR DRUG THERAPY-RELATED HOSPITALIZATIONS		5.18

* REPORTED AS A DISCHARGE DIAGNOSIS

TABLE # 12

MINNESOTA

NUMBER OF POTENTIALLY AVOIDABLE INAPPROPRIATE DRUG THERAPIES
ASSOCIATED WITH HOSPITALIZATION

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	TOTAL DRUG THERAPY-RELATED ADMISSIONS	NUMBER OF DRUG THERAPY-RELATED HOSPITAL ADMISSIONS POTENTIALLY AVOIDABLE
UNDERUTILIZATION	31	29
OVERUTILIZATION	21	19
IATROGENIC	13	8
CONTRAINDICATED COMBINATION	6	6
CONTRAINDICATED BY DIAGNOSIS	53	32
ADVERSE REACTIONS	43	29
ADVERSE DRUG EFFECTS AND DRUG DEPENDENCY*	-	-
TOTAL	167	123

* REPORTED AS A DISCHARGE DIAGNOSIS

TABLE #13

ARKANSAS

NUMBER OF POTENTIALLY AVOIDABLE INAPPROPRIATE DRUG THERAPIES
ASSOCIATED WITH HOSPITALIZATIONS

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	TOTAL DRUG THERAPY-RELATED ADMISSIONS	NUMBER OF DRUG THERAPY-RELATED HOSPITAL ADMISSIONS POTENTIALLY AVOIDABLE
UNDERUTILIZATION	28	18
OVERUTILIZATION	4	4
IATROGENIC	6	4
CONTRAINDICATED COMBINATION	8	2
CONTRAINDICATED BY DIAGNOSIS	44	17
ADVERSE REACTIONS	22	12
ADVERSE DRUG EFFECTS AND DRUG DEPENDENCY *	-	-
TOTAL	110	57

* REPORTED AS A DISCHARGE DIAGNOSIS

TABLE 14

CALIFORNIA

NUMBER OF POTENTIALLY AVOIDABLE INAPPROPRIATE DRUG THERAPIES
ASSOCIATED WITH HOSPITALIZATIONS

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	TOTAL DRUG THERAPY-RELATED ADMISSIONS	NUMBER OF DRUG THERAPY-RELATED HOSPITAL ADMISSIONS POTENTIALLY AVOIDABLE
UNDERUTILIZATION	14	7
OVERUTILIZATION	11	9
IATROGENIC	6	3
CONTRAINDICATED COMBINATION	4	4
CONTRAINDICATED BY DIAGNOSIS	44	26
ADVERSE REACTIONS	12	9
ADVERSE DRUG EFFECTS AND DRUG DEPENDENCY*	[illegible]	[illegible]
TOTAL	92	58

* REPORTED AS A DISCHARGE DISGNOSIS

TABLE #15

MINNESOTA

TYPES OF POSSIBLY INAPPROPRIATE DRUG THERAPIES ASSOCIATED WITH HOSPITALIZATIONS CLASSIFIED BY DIAGNOSTIC CATEGORY

HOSPITAL DISCHARGE DIAGNOSIS BY ORGAN SYSTEM	UNDER-UTILIZATION	OVER-UTILIZATION	IATRO-GENIC	CONTRAINDI-CATED COMB	CONTRAINDI-CATED BY DX	ADVERSE REACTIONS
CARDIO/CEREBRO VASCULAR SYSTEM	15	4	2	4	20	15
CENTRAL & PERIPHERAL NERVOUS SYSTEM	14	10	1	1	6	6
RENAL SYSTEM	0	0	1	0	5	4
ENDOCRINE & METABOLIC SYSTEM	0	0	1	1	9	5
GASTROINTESTINAL SYSTEM	1	1	6	0	4	5
MISCELLANEOUS SYSTEMS	1	6	2	0	9	8

TABLE #16

ARKANSAS

TYPES OF POSSIBLY INAPPROPRIATE DRUG THERAPIES ASSOCIATED WITH HOSPITALIZATIONS CLASSIFIED BY DIAGNOSTIC CATEGORY

HOSPITAL DISCHARGE DIAGNOSIS BY ORGAN SYSTEM	UNDER-UTILIZATION	OVER-UTILIZATION	IATRO-GENIC	CONTRAINDI-CATED COMB.	CONTRAINDI-CATED BY DX	ADVERSE REACTIONS
CARDIO/CEREBRO VASCULAR SYSTEM	16	1	1	5	18	7
CENTRAL & PERIPHERAL NERVOUS SYSTEM	7	2	0	1	0	3
RENAL SYSTEM	1	1	0	0	1	3
ENDOCRINE & METABOLIC SYSTEM	4	0	3	1	7	3
GASTROINTESTINAL SYSTEM	0	0	2	1	13	1
MISCELLANEOUS SYSTEMS	0	0	0	0	5	5

TABLE 17

CALIFORNIA

TYPES OF POSSIBLY INAPPROPRIATE DRUG THERAPIES ASSOCIATED WITH HOSPITALIZATIONS CLASSIFIED BY DIAGNOSTIC CATEGORY

HOSPITAL DISCHARGE DIAGNOSIS BY ORGAN SYSTEM	UNDER-UTILIZATION	OVER-UTILIZATION	IATRO-GENIC	CONTRAINDI-CATED COMB.	CONTRAINDI-CATED BY DX	ADVERSE REACTION
CARDIO/CEREBRO VASCULAR SYSTEM	5	3	0	3	15	10
CENTRAL & PERIPHERAL NERVOUS SYSTEM	5	8	3	0	7	1
RENAL SYSTEM	1	0	0	0	2	0
ENDOCRINE & METABOLIC SYSTEM	2	0	0	0	8	0
GASTROINTESTINAL SYSTEM	0	0	3	0	8	1
MISCELLANEOUS SYSTEMS	1	0	0	1	4	0

MINNESOTA

TABLE # 18

PHARMACEUTICAL PRODUCTS ASSOCIATED WITH POSSIBLE DRUG THERAPY-RELATED HOSPITALIZATIONS CLASSIFIED BY DIAGNOSTIC CATEGORY

HOSPITAL DISCHARGE DIAGNOSIS BY ORGAN SYSTEM	NO. OF POSSIBLE DRUG THERAPY RELATED HOSPITALIZATIONS	DRUG THERAPIES IMPLICATED
CARDIO/CEREBRO VASCULAR SYSTEM CONGESTIVE HEART FAILURE MYOCARDIAL INFARCTION ARRHYTHMIA & HEART BLOCK HYPERTENSION CEREBROVASCULAR DISEASE	60	HYDROCHLORTHIAZIDE, PREDNISONE FUROSEMIDE, PHENYLPROPANOLAMINE DIGITALIS, PROPRANOLOL, WARFARIN POTASSIUM CHLORIDE, CHLORPROMA-ZINE
CENTRAL & PERIPHERAL NERVOUS SYSTEM CONVULSIONS PARKINSONISM NEURITIS HEADACHE, NEURALGIA VERTIGO	38	DIAZEPAM, SECOBARBITAL, RESERPINE PHENYLPROPANOLAMINE, PHENYTOIN, PHENYLEPHRINE, PHENTERMINE, AMITRIPTYLINE
RENAL SYSTEM HEMATURIA BLADDER DYSFUNCTION URINARY RETENTION CYSTITIS	10	ACETAMINOPHEN, CALCIUM CARBONATE PHENACETIN, ERGOTAMINE, IBUPRO-FEN, SPIRONOLACTONE, AMITRIPTYLINE PROTRIPTYLINE, PENTAZOINE
ENDOCRINE & METABOLIC SYSTEM DIABETES MELLITUS HYPOTHYROIDISM GOUT	16	HYDROCHLORTHIAZIDE, PREDNISONE, FUROSEMIDE, HALOPERIDOL
GASTROINTESTINAL SYSTEM STOMACH ULCER PERFORATION OF INTESTINE GI BLEEDING DISORDER OF MOTILITY	17	POTASSIUM CHLORIDE(TABLETS),ASA, PROPOXYPHENE COMPOUND, INDOMETH-ACIN, NITROFURDANTIN, FERROUS SULFATE, METHAMPHETAMINE, LINCO-MYCIN

ARKANSAS

TABLE #19

PHARMACEUTICAL PRODUCTS ASSOCIATED WITH POSSIBLE DRUG THERAPY-RELATED HOSPITALIZATIONS CLASSIFIED BY DIAGNOSTIC CATEGORY

HOSPITAL DISCHARGE DIAGNOSIS BY ORGAN SYSTEM	NO. OF POSSIBLE DRUG THERAPY RELATED HOSPITALIZATIONS	DRUG THERAPIES IMPLICATED
CARDIO/CEREBRO VASCULAR SYSTEM CONGESTIVE HEART FAILURE MYOCARDIAL INFARCTION ARRHYTHMIA & HEART BLOCK HYPERTENSION/HYPOTENSION CEREBROVASCULAR DISEASE	48	FUROSEMIDE, PROPRANOLOL, DIGITALIS, INDOMETHACIN, THYROID, AMITRIPTYLINE, OXYPHENBUTAZONE, THYAZIDE NITROGLYCERINE, IMIPRAMINE, WARFARIN, PHENYLBUTAZONE, PREDNISONE, POTASSIUM RESERPINE, PHENOTHIAZINES, THEOPHYLLINE PHENYLPROPANOLAMINE, EPHEDRINE
CENTRAL & PERIPHERAL NERVOUS SYSTEM CONVULSIONS PARKINSONISM NEURITIS HEADACHE, NEURALGIA VERTIGO	13	PHENYTOIN, PHENOBARBITAL, PRIMIDONE, TRICYCYCLIC ANTIDEPRESSANTS, PROPROXEPHENE
RENAL SYSTEM HEMATURIA BLADDER DYSFUNCTION RENAL FAILURE URINARY RETENTION CYSTITIS	6	THIORIDAZINE, TRIHEXYPHENIDYL, METHENAMINE, PHENFORMIN, TETRACYCLINE, SULFAMETHOXAZOLE, INDOMETHACIN, MEPROBAMATE
ENDOCRINE & METABOLIC SYSTEM DIABETES MELLITUS HYPOTHYROIDISM GOUT	18	THYROID, PREDNISONE, TOLBUTAMIDE, ACETOHEXAMIDE, THIAZIDES, FUROSEMIDE, PHENOTHIAZINES, SALICYLATES
GASTROINTESTINAL SYSTEM STOMACH ULCER PERFORATION OF INTESTINE GI BLEEDING DISORDER OF MOTILITY	17	POTASSIUM, RESERPINE, TRICYCLIC ANTIDEPRESSANTS, INDOMETHACIN, FERROUS SULFATE, PHENYTOIN, PREDNISONE, CHLORAL HYDRATE, ISOXSUPRINE, THEOPHYLLINE

TABLE 20

PHARMACEUTICAL PRODUCTS ASSOCIATED WITH POSSIBLE DRUG THERAPY-RELATED HOSPITALIZATIONS CLASSIFIED BY DIAGNOSTIC CATEGORY

HOSPITAL DISCHARGE DIAGNOSIS BY ORGAN SYSTEM	NO. OF POSSIBLE DRUG THERAPY RELATED HOSPITALIZATIONS	DRUG THERAPIES IMPLICATED
CARDIO/CEREBRO VASCULAR SYSTEM CONGESTIVE HEART FAILURE MYOCARDIAL INFARCTION ARRHYTHMIA & HEART BLOCK HYPERTENSION/HYPOTENSION CEREBROVASCULAR DISEASE	36	AMITRIPTYLINE, THEOPHYLINE, PHENYLPROPANOLAMINE, THYROID DYAZIDE, LITHIUM, DIGITALIS, FUROSEMIDE, PREDNISONE, METHYL DOPA, ORAL CONTRACEPTIVES, OXYPHENBUTAZONE, PHENYLBUTAZONE,
CENTRAL & PERIPHERAL SYSTEM CONVULSIONS PARKINSONISM NEURTIS HEADACHE, NEURALGIA VERTIGO	24	PHENYTOIN, CHLORAL HYDRATE, INDOMETHACIN, METHYL DOPA, AMITRIPTYLINE, AMOBARBITAL, PREDNISONE, THORIDAZINE, SECOBARBITAL, ETHCHLORVYNOL, CHLORPROMAZINE
RENAL SYSTEM HEMATURIA BLADDER DYSFUNCTION RENAL FAILURE URINARY RETENTION CYSTITIS	3	APRESOLINE, FUROSEMIDE, ALLOPURINOL,
ENDOCRINE & METABLOIC SYSTEM DIABETES MELLITUS HYPOTHYROIDISM GOUT	10	CHLORPROPAMIDE, AMITRIPTYLINE, FUROSEMIDE, RESERPINE, SODIUM SALICYLATE, INDOMETHACIN, THYAZIDES ORAL CONTRACEPTIVES, TRIAMPTERENE, PREDNISONE
GASTROINTESTINAL SYSTEM STOMACH ULCER PERFORATION OF INTESTINE DISORDER OF MOTILITY	12	OXYPHENBUTAZONE, APC&CODEINE, CHLORAL HYDRATE, SODIUM SALICYLATE, INDOMETHACIN FERROUS SULFATE, FLAGYL PREDNISONE

TABLE 21

COST AND LENGTH OF STAY (LOS) IMPACT OF POTENTIALLY AVOIDABLE INAPPROPRIATE DRUG THERAPIES ASSOCIATED WITH HOSPITALIZATIONS

	MINNESOTA		ARKANSAS	
	POSSIBLY DRUG RELATED HOSPITALIZATION	POTENTIALLY AVOIDABLE HOSPITALIZATIONS	POSSIBLY DRUG RELATED HOSPITALIZATIONS	POTENTIALLY AVOIDABLE HOSPITALIZATIONS
NUMBER OF PATIENTS	222	123	142	57
PER CENT OF TOTAL ADMISSIONS	7.22	3.57	4.75	1.91
TOTAL NUMBER OF PATIENT HOSPITAL DAYS	1,878	1,078	813	354
TOTAL MEDICAID EXPENDITURE *	$197,574	$112,350	$85,969	$35,808

* MEDICARE CROSSOVER EXPENDITURES NOT INCLUDED

TABLE # 22

COST AND LENGTH OF STAY (LOS) IMPACT OF POTENTIALLY AVOIDABLE INAPPROPRIATE DRUG THERAPIES ASSOCIATED WITH HOSPITALIZATION

	CALIFORNIA	
	POSSIBLY DRUG RELATED HOSPITALIZATIONS	POTENTIALLY AVOIDABLE HOSPITALIZATIONS
NUMBER OF PATIENTS	125	58
PER CENT OF TOTAL ADMISSIONS	4.10	1.90
TOTAL NUMBER OF PATIENT HOSPITAL DAYS	648	301
TOTAL MEDICAID EXPENDITURE *	$98,660	$45,778

* MEDICARE CROSSOVER PAYMENTS NOT INCLUDED

TABLE #23

ARKANSAS

NUMBER OF INAPPROPRIATE DRUG THERAPIES INVOLVING MULTIPLE PHYSICIANS ASSOCIATED WITH HOSPITALIZATIONS

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	TOTAL	NUMBER OF THERAPIES INVOLVING MULTIPLE PHYSICIANS
UNDERUTILIZATIONS	28	0
OVERUTILIZATIONS	4	2
IATROGENIC	6	2
CONTRAINDICATED COMBINATION	8	5
CONTRAINDICATED BY DIAGNOSIS	44	17
ADVERSE REACTIONS	22	5

FIGURE 1

HEALTH INFORMATION DESIGNS, INC.

INITIAL DATA COLLECTION FORM

_____ _____ _____

CONTROL NUMBER REVIEWER

HOSPITAL _____ TEACHING ☐ NON-TEACHING ☐

ITY _____ URBAN ☐ NON-URBAN ☐

ATIENT ID NUMBER _____ AGE____ SEX____ AID CATEGORY _____

DATE ADMITTED _____ DATE DISCHARGED_____ LOS_____ TOT CHGS _____

****

DMISSION/DISCHARGE DIAGNOSIS: 1._____ CODE_____

2. _____ CODE _____

3. _____ CODE _____

4. _____ CODE _____

5. _____ CODE _____

OSSIBLE DRUG RELATED DIAGNOSIS:

DIAGNOSIS #1 YES ☐ NO ☐ QUESTIONABLE ☐

DIAGNOSIS #2 YES ☐ NO ☐ QUESTIONABLE ☐

DIAGNOSIS #3 YES ☐ NO ☐ QUESTIONABLE ☐

DIAGNOSIS #4 YES ☐ NO ☐ QUESTIONABLE ☐

DIAGNOSIS #5 YES ☐ NO ☐ QUESTIONABLE ☐

****

HOSPITAL VERIFICATION

ATE OF VERIFICATION _____

DIAGNOSIS RECONCILIATION:

DIAGNOSIS #1 _____ VERIFIED ☐ NOT VERIFIED ☐

DIAGNOSIS #2 _____ VERIFIED ☐ NOT VERIFIED ☐

DIAGNOSIS #3 _____ VERIFIED ☐ NOT VERIFIED ☐

DIAGNOSIS #4 _____ VERIFIED ☐ NOT VERIFIED ☐

DIAGNOSIS #5 _____ VERIFIED ☐ NOT VERIFIED ☐

FIGURE 2

HEALTH INFORMATION DESIGNS, INC.

DRUG PROFILE EVALUATION FORM

_____ ONTROL NUMBER

_____ REVIEWER

DATE OF ADMISSION ___/___/___ PATIENT AGE _____ SEX _____ AID CATEGORY _____

IAGNOSIS : 1. _____ CODE _____

2. _____ CODE _____

O MEDICAID DRUG PURCHASES PRIOR TO HOSPITAL ADMISSION ☐

****

ECTION I - DRUG SELECTION EVALUATION

DRUG	DOS	DURATION OF Tx	PROX TO ADMISSION	MULT PHYS
A. DRUG WITH IATROGENIC POTENTIAL				
1. _____	___/___/___	____DA	____DA	☐
2. _____	___/___/___	____DA	____DA	
B. DRUG CONTRAINDICATED TO DIAGNOSIS				
1. _____	___/___/___	____DA	____DA	☐
2. _____	___/___/___	____DA	____DA	
C. CONTRAINDICATED DRUG COMBINATIONS				
1. _____	___/___/___	____DA	____DA	☐
2. _____	___/___/___	____DA	____DA	
D. DRUGS CONTRIBUTING TO AN ADVERSE REACTION				
1. _____	___/___/___	____DA	____DA	☐
2. _____	___/___/___	____DA	____DA	

ECTION II - DRUG UTILIZATION EVALUATION

DRUG/STRENGTH	QUAN	DS	D/R	DURATION	PROX TO ADMISSION	MULT PHYS
A. OVERUTILIZATION						
1. _____	___	___	___	____DA	____DA	☐
2. _____	___	___	___	____DA	____DA	
B. UNDERUTILIZATION						
1. _____	___	___	___	____DA	____DA	☐
2. _____	___	___	___	____DA	____DA	

SECTION III - PROFILE EVALUATION SUMMARY

1. INAPPROPRIATE DRUG THERAPY NOTED: YES☐ NO☐ QUESTIONABLE☐
2. EVIDENCE OF IATROGENIC COMPLICATION : YES☐ NO☐ QUESTIONABLE☐
3. EVIDENCE OF ADVERSE DRUG REACTION : YES☐ NO☐ QUESTIONABLE☐
4. DRUG RELATED HOSPITAL ADMISSION : YES☐ NO☐ QUESTIONABLE☐

   DRUG(S) INVOLVED: _____
5. COULD INAPPROPRIATE THERAPY PATTERN BEEN AVOIDED? YES☐ NO☐ QUESTIONABLE☐

HEALTH INFORMATION DESIGNS, INC.

TOP 10 PERCENTILE OF HOSPITALS
STATE OF MINNESOTA

Hospital	City	Tot. Pmts. (7/76-5/77)
1. Hennepin Co. Med. Center*	Minneapolis	$7.6 Million
2. Univ. of Minnesota Hospitals*	Minneapolis	$6.23
3. St. Paul-Ramsey Hospital*	St. Paul	$5.14
4. Metropolitan Medical Center	Minneapolis	$2.18
5. Children's Health Center	Minneapolis	$2.10
6. Golden Valley Health Center	Minneapolis	$1.78
7. North Memorial Medical Center	Minneapolis	$1.63
8. Mount Sinai Hospital	Minneapolis	$1.49
9. Children's Hospital	St. Paul	$1.48
10. Fairview Hospital	Minneapolis	$1.35
11. St. Mary's Hospital	Minneapolis	$1.17
12. St. Mary's Hospital	Duluth	$1.15
13. St. Joseph's Hospital	St. Paul	$1.07
14. N.W. Div./Abbott-Northwestern	Minneapolis	$1.04
15. Abbott Hospital	Minneapolis	$1.04
16. St. Luke's Hospital	Duluth	$0.93
17. Bethesda Lutheran Hospital	St. Paul	$0.88
18. Lutheran Deaconess Hospital	Minneapolis	$0.88
19. UHI Miller Division	St. Paul	$0.77
20. St. Cloud Hospital	St. Cloud	$0.77
21. Mercy Hospital	Minneapolis	$0.72
22. Methodist Hospital	Minneapolis	$0.71
23. Unity Hospital	Minneapolis	$0.69
24. UHI St. Luke's Division	St. Paul	$0.68
25. St. John's Lutheran	St. Paul	$0.64
26. St. Mary's Hospital*	Rochester	$0.61
27. Mounds Park Hospital	St. Paul	$0.56
28. Miller Dawn Hospital*	Duluth	$0.54
29. Midway Hospital	St. Paul	$0.49
30. Fairview Southdale Hospital	Minneapolis	$0.42
31. Hibbing General Hospital	Hibbing	$0.39
32. Rice Memorial Hospital	Willmar	$0.38
33. Gillette Children's Hospital	St. Paul	$0.36
34. Immanual-St. Joseph's Hospital	Mankato	$0.30
35. Bemidji Hospital	Bemidji	$0.30
36. Eitel Hospital	Minneapolis	$0.29
37. St. Joseph's Hospital	Brainerd	$0.29
38. Itasca Memorial Hospital	Grand Rapids	$0.28
39. Rochester Methodist Hospital*	Rochester	$0.27
40. Divine Redeemer Memorial Hospital	South St. Paul	$0.24

* Denotes Teaching Hospital

TOP 10 PERCENTILE OF HOSPITALS

STATE OF ARKANSAS

Hospital	City	Tot. Pmts. (1/76-12/76)
1. Univ. Of Ark. Medical Center*	Little Rock	$4.26 Million
2. Arkansas Children's Hospital*	Little Rock	$1.36
3. Baptist Medical Center	Little Rock	$0.79
4. Helena Hospital	Helena	$0.72
5. Sparks Memorial Hospital	Fort Smith	$0.60
6. St. Vincent's Infirmary	Little Rock	$0.57
7. Jefferson Hospital	Pine Bluff	$0.53
8. St. Bernard's Reg. Med. Center	Jonesboro	$0.48
9. Forrest City Memorial Hospital	Forrest City	$0.43
10. Chickasawaba	Blythesville	$0.41

HEALTH INFORMATION DESIGNS, INC.

TOP 10 PERCENTILE OF HOSPITALS
STATE OF CALIFORNIA

Hospital	City	Tot. Pmts. (1/76-12/76)
1. L.A. Co.,USC Med. Center Hospital*	L.A.	$42.8 Million
2. U.C. Davis, Sacramento Med. Center*	Sacramento	$16.9
3. Santa Clara Valley *	San Jose	$16.7
4. S.F. General*	S.F.	$16.0
5. Harbor General*	L.A.	$14.8
6. Valley Medical Center*	Fresno	$13.9
7. U.C.L.A.*	L.A.	$11.2
8. U.C.S.F.*	S.F.	$11.0
9. Ranch Los Amigos*	Downey	$10.3
10. Stanford Hospital*	Stanford	$ 9.9
11. U.C. San Diego *	San Diego	$ 9.8
12. L.A. Co. Martin Luther King *	L.A.	$ 8.6
13. Highland General *	Oakland	$ 8.3
14. Kern County Medical Center *	Bakersfield	$ 7.8
15. Orange County Medical Center *	Santa Ana	$ 7.8
16. San Bernadino Co. Med. Center *	San Bernadino	$ 7.5
17. Mt. Zion *	S.F.	$ 7.2
18. San Joaquin General *	Stockton	$ 7.1
19. Loma Linda University*	Loma Linda	$ 7.0
20. Children's Hospital of L.A. *	L.A.	$ 6.8
21. Children's Hospital Med. Center *	Oakland	$ 6.6
22. White Memorial *	L.A.	$ 5.9
23. Riverside General University*	Riverside	$ 5.7
24. Contra Costa County	Martinez	$ 5.1
25. Fresno Community	Fresno	$ 5.1
26. St. Luke's	S.F.	$ 4.9
27. Herrick Memorial	Berkeley	$ 4.7
28. Dr. David M. Brotman Memorial	Culver City	$ 4.7
29. Laguna	S.F.	$ 4.5
30. U.C. Irvine*	Santa Ana	$ 4.4
31. Alta Bates	Berkeley	$ 4.3
32. John Wesley County	L.A.	$ 4.3
33. Children's Hospital of S.F. *	S.F.	$ 4.3
34. Dominguez Valley	Compton	$ 4.1
35. Sutter Memorial *	Sacramento	$ 4.1
36. San Jose Hospital	San Jose	$ 4.0
37. Alexian Brothers	San Jose	$ 3.8
38. West Adams Community	L.A.	$ 3.7
39. Paradise Valley	National City	$ 3.7
40. Memorial Hospital Med. Center *	Long Beach	$ 3.7
41. Chope Memorial	San Mateo	$ 3.7

* Denotes Teaching Hospital

HEALTH INFORMATION DESIGNS, INC.

Top 10 Percentile of Hospitals
State of California (Con't)

Hospital	City	Tot. Pmts. (1/76-12/76)
42. Presbyterian Medical Center	S.F.	$ 3.7 Million
43. Ventura County General	Ventura	$ 3.5
44. Fairmont General	Oakland	$ 3.5
45. Mercy Hospital*	San Diego	$ 3.3
46. Huntington Memorial *	Pasadena	$ 3.2
47. St. Mary's Hospital *	S.F.	$ 3.1
48. Vesper Memorial	San Leandro	$ 3.1
49. Scenic General	Modesto	$ 3.0
50. California Hospital Med. Center *	L.A.	$ 3.0
51. St. Francis	Lynnwood	$ 2.9
52. Mary's Help Hospital *	S.F.	$ 2.8
53. Brookside	San Pablo	$ 2.8
54. Bauer/St. Mary's Medical Center *	Long Beach	$ 2.7
55. U.C.L.A./USC Medical Center *	L.A.	$ 2.7
56. Merritt Hospital *	Oakland	$ 2.7
57. Navidad Medical Center		$ 2.7
58. Providence Hospital	Marin	$ 2.7
59. Community Hospital	San Diego	$ 2.6
60. L.A. Olive View Medical Center	Olive View	$ 2.5
61. Cedars/Sinai Medical Center *	L.A.	$ 2.5
62. El Camino	San Jose	$ 2.5
63. Merced Community Medical Center	Merced	$ 2.4
64. St. Francis Memorial	S.F.	$ 2.4
65. Palm Dale General	Palm Dale	$ 2.4
66. Sharp Memorial	San Diego	$ 2.3
67. El Cajon Valley	El Cajon	$ 2.3
68. Glendale Adventist Medical Center *	Glendale	$ 2.2
69. Doctors Hospital		$ 2.2
70. Serra Memorial Hospital	Sun Valley	$ 2.2
71. Children's Hospital & Health Center *	San Diego	$ 2.1
72. Canyon General	Sacramento	$ 2.1
73. Mercy San Juan	Sacramento	$ 2.1
74. Sequoia Hospital District	Redwood City	$ 2.1
75. Mercy Hospital	Bakersfield	$ 2.1
76. St. Bernadine's	San Bernadino	$ 2.0
77. Dominican Santa Cruz	Santa Cruz	$ 2.0
78. Community Hospital of Sonoma	Sonoma	$ 2.0
79. Children's Hospital of Stanford	Stanford	$ 2.0
80. Eskaton American River Hospital	Sacramento	$ 2.0
81. Cedars-Sinai Medical Center		$ 2.0
82. St. Joseph's		$ 2.0
83. Oakland Hospital	Oakland	$ 2.0

NOMINAL GROUPING SESSION
TUESDAY, AUGUST 9, 1977
11:00 A.M. - 12:30 P.M.

1. Nelson Irey, M.D.
   Chief, Tissue Reaction to Drugs
   Armed Forces Institute of Pathology
   Washington, D.C. 20306

2. James Long, M.D.
   Director, Health Services
   National Science Foundation
   7116 Panorama Drive
   Rockville, Maryland 20855

3. Arthur Ruskin, M.D.
   Associate Director for Biometrics & Epidemiology
   Bureau of Drugs (HFD-200)
   Food and Drug Administration
   5600 Fishers Lane
   Rockville, Maryland 20857

4. Frank G. Standaert, M.D.
   Chairman, Department of Pharmacology
   Georgetown University, School of Medicine
   3900 Reservoir Road
   Washington, D.C. 20007

5. Mary Tierney, M.D.
   Medical Officer, Div. of Peer Review
   Room 16A27, Parklawn Building
   5600 Fishers Lane
   Rockville, Maryland 20852

6. Sidney Tyroler, M.D.
   Medical Consultant/Blue Shield
   820 North Stafford St.
   Arlington, Virginia 22203

Nominal Grouping Session
Tuesday, August 9, 1977
3:00 P.M. - 4:30 P.M.

1. Carl Emswiller, Pharm.B.
   65 B Gibson Street, #215
   Leesburg, Virginia 22075

2. Joel Kahn, Pharm.B.
   1818 St. Roman Drive
   Vienna, Virginia 22180

3. Charma Konnor, Pharm.B.
   5006 Lone Oak Place
   Fairfax, Virginia 22030

4. Capt. Robert I. Selle, Pharm.D.
   4757-1 Dogwood Lane
   Andrews Air Force Base, Maitland 20335

5. Tom Wiser, Pharm.D.
   School of Pharmacy
   University of Maryland
   636 West Lombard
   Baltimore, Maryland 21201

RELEVANT CRITERIA BASED ON

DRUG PROFILE LIMITATIONS

Nominal Grouping: Physician Session

Failure of patient to take the drug.

Erroneous diagnosis.

Improper choice of drugs by the physician.

Not using the right drug or use of wrong drug.

Failure to observe contraindications.

Multiple physician prescribing.

Failure to discontinue drug at the appropriate time.

Drug interactions of all kinds.

Failure to inform M.D. of known drug allergies or intolerances.

Cost of drug

Physician's failure to obtain history of disease state.

Suicide attempts.

Failure to tell M.D. of other drugs being taken and M.D. not inquiring.

Non-compliance - deliberate and/or inadvertant.

Patients with multiple diseases taking toxic items.

Misprescribing for patients by M.D.s not distinguishing predisposing factors.

Masking of a disease by the use of any drug.

Premature termination of therapy.

Use of over or under dosage of prescription items.

RELEVANT CRITERIA BASED ON

DRUG PROFILE LIMITATIONS

Nominal Grouping: Pharmacist Session

Use of drug when safer and more efficacious one is available.

Drug prescribed at wrong strength.

Patient non-compliance.

Overdosage or underdosage prescribed.

Therapeutic duplication.

Inappropriate route of administration.

Therapeutic contraindicated use of medication.

Insufficient quantity of medication prescribed.

Drug-drug interaction.

Conflicting medical regimen due to multiple physicians.

Prolonged duration of therapy.

Inappropriate dosage interval.

Use of drug based on improper or erroneous diagnosis.

High risk-to-benefit ratio of drug.

Iatrogenic complication of treatment.

Wrong drug for problem defined.

Physician not considering predisposing factors, ie. allergies, genetics age, sex, and diseases.

Cost of drugs.

Inadequate duration of drug therapy.

Administrator's non-compliance.

Symptomatic treatment masking underlying disease.

Drug-disease interaction.

Patient using multiple pharmacies.

Adverse drug reactions.

Insufficient prescribing.

MINNESOTA PROVIDER DETAIL REPORT

ON DATE: 08/14/77 PROVIDER DETAIL REPORT PWBS5330 PAGE 1,830

IDENTIFICATION SECTION
NAME: [redacted] HOSPITAL COUNTY: 69 PRACTICE: 00 SPECIALTY: 98,98,98 SIZE:
NUMBER: 0101428 TYPE: 01 CONTROL: 1 SERVICES: 01 EXCEPTION: 0 GROUP NUMBER:

CATEGORY OF SERVICE 01

ECIPIENT ID NUMBER	TRANSACTION CONTROL NUMBER	P A	RECIPIENT SEX	AGE	CAT	3RD PTY	ADJ STAT	DIAG CODE	ATTEND PHYS	DATE PAID	ADMISSION DATE	SERVICE DATES FIRST	LAST	TYPE BILL	AMOUNT PAID	L	DAYS	TOT CHG
																17		3.50
																21		52.00
92000075296X101	762460100745400	0	2	24	2			09779		09/04/76	06/14/76	06/14/76	06/19/76	2	626.54	03	4	296.00
[redacted]	D		ADVERSE EFFECTS OF UNSPECIF drugs													05	1	127.50
110208																14		13.05
																15		22.00
																16		24.40
																17		20.50
																21		5.25
																47		155.00
																20		10.00
[redacted]	762120700865200	0	2	77	2		R	09779		08/06/76	06/14/76	06/14/76	06/19/76	2	.00	03	5	370.00
			ADVERSE EFFECTS OF UNSPECIF drugs													14		13.05
																15		22.00

MINNESOTA RECIEPIENT HISTORY REPORT

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53842                                  M A S T E R   C L A I M S   H I S T O R Y                                    PAGE C83
182                                  R E G U E S T E D   F E R C E F T   B Y   R E C I P I E N T                    09/03/77

UESTOR: SR [redacted]   RECIPIENT NUMBER: 62-8-000-026-6962-101   RECIPIENT NAME: [redacted]   [redacted]   PAGE: 11

  PROVIDER                          CLAIM CONTROL NO    DATES OF SERVICE    PROCEDURE,    CLAIM      REIMB     DATE
ID      NAME                                                                SVC CLASS     AMOUNT     AMOUNT    PAID

0525  [redacted] CRUG    76146-5C4-00087-03
      CILANTIN KAP1 1/2GR 362  PC  100 S 0012Y      04/26/76 -          0071036204     6.28
                                                                      CLAIM TOTAL      6.28        6.28  06/07/76

0525  [redacted] ORUG    76146-5C4-00052-02
      KADCHLOR LIQ 20% CONC    W1  16 OZ      Y      04/26/76 -          0013311351     5.43
                                                                      CLAIM TOTAL      5.43        5.43  06/07/76

0525  [redacted] CRUG    76146-5C4-00200-05
      MELLARIL TAB 25MG     SAN  100 S 0014N      04/27/76 -          0078000305     5.52
                                                                      CLAIM TOTAL      5.52        5.52  06/07/76

0525  [redacted] CRUG    76146-5C4-00474-03
      ALCOMET TAB 25CMG 3250  MSC  100 S 00581      05/03/76 -          0006040168    11.05
                                                                      CLAIM TOTAL     11.05       11.05  06/07/76

                                                                  PROVIDER TOTAL REIMB AMT          263.56

15203 [redacted] PHARMACY    76174-011-00075-01
      KADCHLOR LIQ 20% CONC    W7  16 OZ      Y      05/14/76 -          0013311351     5.40
                                                                      CLAIM TOTAL      5.40        5.40  07/06/76

15203 [redacted] PHARMACY    76174-011-00075-04
      ALCOMET-250 TAB 100LO  6-0401-28      Y      05/14/76 -          0006040128     6.30
                                                                      CLAIM TOTAL      6.30        6.30  07/06/76

15203 [redacted] PHARMACY    76174-011-00075-05
      COLACE CAP 100MG         MJ   60 S 00454N      05/14/76 -          0087071402     4.70
                                                                      CLAIM TOTAL      4.70        4.70  07/06/76

15203 [redacted] PHARMACY    76174-011-00075-06
      CILANTIN KAP1 1/2GR 362  FO  100 S 0012Y      05/14/76 -          0071036204     3.20
                                                                      CLAIM TOTAL      3.20        3.20  07/06/76

15203 [redacted] PHARMACY    76174-011-00075-01
      HYDRO DIURIL 50MG  3264 MSC  100 S 0025N      05/14/76 -          0006010568     3.65
                                                                      CLAIM TOTAL      3.65        3.85  07/06/76
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ARKANSAS PROVIDER DETAIL REPORT

RUN DATE: 08/16/77 — ARKANSAS MEDICAID PROGRAM — HUMPTOP — PAGE 1,267

PROVIDER DETAIL REPORT

IDENTIFICATION SECTION
NAME: [redacted] HOSP — COUNTY: 65 — PRACTICE: 00 — SPECIALTY: — SIZE: 540
NUMBER: 6501966 — TYPE: 00 — CONTROL: 0 — SERVICES: 01 — EXCEPTION: 0 GROUP NUMBER:

CATEGORY OF SERVICE 01

RECIPIENT ID NUMBER	TRANSACTION CONTROL NUMBER	P A	RECIPIENT SEX	RECIPIENT ACE	RECIPIENT CAT	THIRD PARTIC	PTY	FUND TYPE	DIAG CODE	ATTEND PHYS	DATE PAID	ADMISSION DATE	SERVICE DATES FIRST	SERVICE DATES LAST	TYPE BILL	AMOUNT PAID	L I	DAYS	TOT CHG
																	Q		30.00
307740201	761562600001	0	1	8	4	0	0	A	4239	6500455	06/19/76	01/15/76	01/15/76	01/23/76	2	608.00	A		.00
210200																	C	8	392.00
																	J		110.45
																	K		108.00
																	L		214.00
																	M		18.00
																	O		3.00
																	Q		20.00
299294001	761662023901	0	1	63	3	0	2	A	4279	6501869	06/23/76	05/27/76	05/27/76	06/02/76	2	456.00	A		.00
210201																	C	6	324.00
																	J		238.30
																	K		98.00
																	L		289.00
																	M		22.50
																	O		29.00
																	Q		40.00
311350001	760792621901	0	2	64	3	0	2	A	4279	6500846	05/14/76	03/08/76	03/08/76	03/12/76	2	304.00	A		.00
210202																	C	4	176.00
																	J		37.20
																	K		23.00
																	L		107.50
																	M		3.00
																	O		39.00
																	Q		10.00
334870001	762022603801	0	1	64	3	0	2	A	4279	6501923	08/07/76	07/03/76	07/03/76	07/09/76	2	.00	A		.00
																	C	6	324.00
																	J		37.00
																	K		69.00
																	L		183.50
																	M		26.75
																	O		153.00
																	Q		30.00
349648001	760272609601	0	2	55	3	0	2	A	4279	6501281	04/28/76	01/11/76	01/11/76	01/16/76	2	380.00	A		.00
210203																			

ARKANSAS RECIPIENT DRUG PROFILE REPORT

ARKANSAS RECIPIENT PROFILES
STATE OF ARKANSAS TITLE XIX MEDICAID PROGRAM

RECIPIENT ID
00003697C1101000

SERVICE DATE	RATCH CONTROL	DRUG CODE	DRUG DESCRIPTION	DRUG STRTH	QTY	DYS SPL	PROVIDER ID	PRESCRIBER ID	RX NO	CHECK DATE	AMOUNT BILLED	AMOUNT PAID
75/05/06	751900425501	00004000500	VALIUM TABLETS	5MG	60	20	030000477	AM3567130	00224716	750801	7.07	6.57
75/06/07	752120191201	00081024900	LANOXIN TABLETS	0.25MG	30	30	030000477	AM3567130	00227498	750501	2.38	1.88
75/06/25	751820284001	00081024900	LANOXIN TABLETS	0.25MG	30	30	030000394	AM3567130	00077643	750801	2.37	1.87
75/06/25	751820284801	00004000500	VALIUM TABLETS	5MG	36	12	030000394	AM3567130	00077618	750101	5.21	4.57
75/06/26	752120191202	00006004500	ELAVIL TABLETS	25MG	90	30	030000477	AM3567130	00227405	750501	11.49	10.98
75/07/18	752460346101	00081024900	LANOXIN TABLETS	0.25MG	30	30	030000477	AM3567130	00228866	751001	2.38	1.88
75/07/28	752100043401	00006004500	ELAVIL TABLETS	25MG	100	35	030000342	AM3567130	00079499	750701	11.67	11.17
75/08/21	752730227901	00083004600	ESIDRIX TABLETS	50MG	60	60	030000477	AM3567130	00230574	751015	5.77	5.27
75/08/21	752730279002	00004000400	VALIUM TABLETS	2MG	90	30	030000477	AM3567130	00019930	751015	8.27	7.77
75/08/28	752460952801	00006004500	ELAVIL TABLETS	25MG	100	35	030000342	AM3567130	00079490	751001	11.67	11.17
75/09/29	752960146001	00006004500	ELAVIL TABLETS	25MG	30	10	030000477	AM3567130	00232069	751101	5.20	4.70
75/10/07	752890393201	00006004500	ELAVIL TABLETS	25MG	30	10	030000477	AM3567130	00015978	751101	5.20	4.70
75/10/29	753290422201	00082411300	SYNALGOS CAPSULES		40	10	030000477	AM3567130	00234622	751215	4.31	3.81
75/10/29	753290542202	00004000500	VALIUM TABLETS	5MG	30	15	030000477	AM3567130	00020766	751215	4.56	4.06
75/11/04	753150159001	00068069800	TENUATE DOSPAN	75MG	30	30	030000342	AE3220477	00013438	751201	7.01	6.51
75/11/06	753030617301	00006004500	ELAVIL TABLETS	25MG	90	30	030000477	AM3567130	00235002	760201	11.49	10.98
75/12/01	760190138301	00049166000	TETRACYN CAPSULES	250MG	20	5	030000477	AM3567130	00236345	760301	2.67	2.17
75/12/01	760190138302	00002006300	DARVOCET-N 100 TABS	100MG	20	5	030000477	AM3567130	00236346	760301	3.77	3.27
75/12/01	760190138303	00000004800	PHENERGAN VC EXP W/CODE		100	9	030000477	AM3567130	00021119	760301	4.77	4.27
75/12/02	760190138304	00015759200	POLYCILLIN CAPSULES	250MG	10	4	030000477	AM3217634	00236454	760301	5.57	5.07
75/12/04	760190138305	00006004500	ELAVIL TABLETS	25MG	90	30	030000477	AM3567130	00236624	760201	11.49	10.98
75/12/16	760150138401	00081024900	LANOXIN TABLETS	0.25MG	30	30	030000477	AM3567130	00237321	760301	2.38	1.88
75/12/18	760190138402	00003007100	SER-AP-ES TABLETS	0.1MG	60	40	030000477	AE3220477	00237396	760301	7.34	6.84
75/12/18	760190138403	00006005000	INDOCIN CAPSULES	50MG	36	18	030000477	AE3220477	00237391	760301	5.73	5.23
75/12/18	760190138404	00068069800	TENUATE DOSPAN	75MG	30	30	030000477	AE3220477	00021300	760301	7.22	6.72
76/01/05	760440277701	00006004500	ELAVIL TABLETS	25MG	90	30	030000477	AM3567130	00238260	760315	11.49	10.98
76/01/29	760340980701	00007012600	SK-TETRACYCLINE CAPSULE	250MG	20	5	030000394	AM3567130	00089035	760315	2.89	2.23
76/01/29	760340980702	00000004800	PHENERGAN VC EXP W/CODE		120	5	030000342	AM3567130	00089834	760315	3.71	3.21
76/02/04	760410026601	00006004500	ELAVIL TABLETS	25MG	90	30	030000342	AM3567130	00090280	760315	11.33	10.83
76/02/27	760650220601	00046046100	INDERAL TABLETS	10MG	90	30	030000477	AM3567130	00241603	760415	5.61	4.95
76/02/27	760690220602	00004000500	VALIUM TABLETS	5MG	90	30	030000477	AM3567130	00022458	760415	10.30	9.80
76/04/06	761397040810	00004000500	VALIUM TABLETS	5MG	90	30	030000477	AM3567130	00022458	760601	10.30	9.80
76/04/06	761397040811	00046046100	INDERAL TABLETS	10MG	90	30	030000477	AM3567130	00241603	760601	5.61	5.10
76/04/24	761240843301	00006004500	ELAVIL TABLETS	25MG	21	7	030000400	AM3567130	00017201	760601	4.25	3.75

CALIFORNIA LENGTH OF STAY DETAIL REPORT

HOSPITAL UTILIZATION REVIEW FOR BLUE CROSS OF NORTHERN CALIFORNIA MEDI-CAL

HLHP17 LENGTH OF STAY DETAIL REPORT FOR 2ND QUARTER JUNE 30, 1977 * PAGE 1160

HOSP. NO. HOSPITAL NAME LOCATION PSRO RGN.

A004S4F [redacted] * 21 05

DOS

DOCTOR NO. DOCTOR NAME

	SPEC	DIAG CODE	MED/ SURG	AGE	RECIPIENT NO.	SEX	AMOUNT CHARGE	AVG/ PER DAY	ALLOW. STAY	ACT/L STAY	DIFF	EXCP	HUHP09 PAGE	WGHT	
		440	S	52	388507640870 01	F	848.46	424.23	4- 16	2	2-	*L	15819 *	20	1/17/77
310526		444	S	56	388408151000 02	M	881.67	440.84	4- 16	2	2-	*L	15401 *	20	4/18/77
		458	S	23	383008330920 01	F	530.80	530.80	2- 6	1	1-	*L	13715 *	10	4/13/77
310527		462	M	30	388406519570 01	M	1,469.97	183.75	2- 6	8	2	*M	15162	20	
		465	F	34	386095652685 57	F	630.59	315.30	3- 6	2	1-	*L	14851	10	
		493	M	24	388408780020 01	M	2,478.89	309.86	2- 7	8	1	*M	15598 *	10	3/28/77
		493	M	27	196095226826 47	F	3,591.52	448.94	2- 7	8	1	*M	7451 *	10	5/1/77
310528		493	M	29	388408307170 02	F	191.48	191.48	2- 7	1	1-	*L	15621 *	10	4/16/77
		493	M	29	446095507417 08	F	3,120.06	390.01	2- 7	8	1	*M	20879 *	10	3/31/77
		504	M	52	496095541125 38	F	249.06	249.06	3- 4	1	2-	*L	22463	20	
		504	S	50	388408233290 01	M	571.42	285.71	3- 9	2	1-	*L	15425	10	
310529		510	M	41	496094443237 09	M	1,995.33	249.42	2- 6	8	2	*M	22390	20	
		519	M	57	383708931915 01	M	379.02	379.02	2- 6	1	1-	*L	14170	10	
		525	S	49	018800200771 28	F	1,527.56	381.89	1- 3	4	1	*M	3398	10	
		526	S	65	016095523067 94	F	3,037.28	253.11	2- 4	12	8	*M	2241	80	
310530		540	S	24	388408732060 01	M	888.67	444.34	4- 9	2	2-	*L	15572	20	
		550	S	70	411095529688 59	M	3,055.35	203.69	1- 7	15	8	*M	16963	80	
		551	M	29	386095487426 11	F	474.03	474.03	2- 3	1	1-	*L	14565	10	
310531		551	S	52	018405860031 25	F	2,497.08	312.14	3- 6	8	2	*M	3063	20	
		560	M	35	213700867100 50	F	2,741.86	228.49	2- 6	12	6	*M	7810	60	
		562	M	64	418501515725 01	M	2,212.84	221.28	2- 6	10	4	*M	17980	40	
310532		563	M	63	388508439680 01	F	5,000.67	238.13	2- 6	21	15	*M	15830	150	
		563	S	2	490401102990 11	F	3,115.30	239.64	2- 8	13	5	*M	21923	50	
		565	S	28	388408790480 01	M	639.22	319.61	3- 10	2	1-	*L	15611	10	
310533		566	S	10	383509008200 14	F	410.00	410.00	2- 8	1	1-	*L	14077	10	
		576	M	39	388508896560 01	M	675.45	675.45	2- 6	1	1-	*L	15877	10	
		577	M	37	078402140760 60	M	3,488.58	290.72	2- 6	12	6	*M	5202 *	60	4.1.77
310534		577	M	46	383705616655 01	M	2,594.07	288.23	2- 6	9	3	*M	14097 *	30	2.20.77
		580	S	51	358500034990 50	F	5,983.90	351.99	2- 8	17	9	*M	12967 *	90	— 4 L.77
		582	M	18	206095562518 12	F	8,042.20	402.11	2- 7	20	13	*M	7628 *	130	4.1L.77
		592	S	58	438802136560 01	F	3,418.93	262.99	2- 9	13	4	*M	20394	40	
310535		593	S	22	107103194750 00	F	5,695.58	247.59	2- 9	23	14	*M	6312	140	
		599	S	26	386808518490 01	M	2,583.37	322.92	2- 4	8	4	*M	15018	40	

A004S4F 904 139,582.83 476

CALIFORNIA RECIPIENT HISTORY PROFILE

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MID-HMP3A00%        MI01-CAL RECIPIENT ID-60-962?189-8471 MEDICAL HISTORY PROFILE MID CENTRAL OFFIC  10-21-77          PAGE     2
PATIENT NA[redacted]        BIRTH YEAR-?? SEX-M  COUNTY-10  REQUESTED BY MID REGION OR LOCATION-?1  CLERK-0001
**********************************************************************************************************************
          NOTE (*) INDICATES CHECK DATE                                                                   PAT
 SERVICE DATES  I PLACE                                                                                   STATUS/
 ADMIT/  DISCH/ N  OF   DIY/                                                                              DETAIL  PROVIDER VERF
 FROM    TO/CHK D SERV  DAYS          DIAGNOSIS/SERVICE CODE AND DESCRIPTION          ECD  DETAIL BILLED  PAID    NUMBER  CODE  CLAIM ICN
----------------------------------------------------------------------------------------------------------------------------------
02-01-77/03/28/77*                    535.0-PRIMARY: GASTRITIS AND DUODENITIS                                  DISCH   27P0CC50C 60 1077063300019
02-01-77/02-03-77 IPHSP               569.0-SECONDS: OTHER DIS OF INTESTINES AND PERITONEUM                    HOME
                          2.0 02 - SEMI-PRIVATE ROOM ACCOMMODATION                 000   222.00   222.00
                              C1 - INPATIENT DRUGS                                 000    24.00    24.00
                              H1 - X-RAY EXAMINATIONS                              000    69.50    69.50
                              K1 - LABORATORY EXAMINATIONS                         000   119.25   119.25
                              G1 - IV SOL, SERS, EMS                               000    30.00    30.00
                              J1 - MEDICAL/SURGICAL SUPPLIES                       000    10.50    10.50
                              P1 - OTHER                                           000    47.00    47.00

          04/19/77*                   V00.0-PRIMARY: MEDICAL OR SPECIAL EXAMINATION                            2222000432 23 1077066002160
02-02-77          OFFIC    1.0 85010-   BLOOD COUNT COMPLETE                        000     8.00     8.24
          01/24/77*                   461.0-PRIMARY: ACUTE SINUSITIS                                           0000075600 20 1077005005166
12-29-75          OFFIC    1.0 90040-   BRIEF EXAM EVAL A/O TREATMENT               000    12.00     8.28
12-09-75                     1.0 90040-   BRIEF EXAM EVAL A/O TREATMENT               000    12.00     8.28

12-29-75 01/24/77*PHAR     100.0 33110-PO NITROGLYCERIN                        TABS  000     4.47     4.47 PHA171510 25 1077005300612

11-18-76 12/27/75*PHAR      50.0 23020-PO APC WITH CODEINE TABS                1/2GR 000     6.01     6.01 PHA171510 26 1076337301407
11-18-76                - 100.0 90760-PO ACTIFED TRIPOLIDINE AND PSEUDOEPHED  TABLET 000     7.61     7.61
11-18-76                -  20.0 02970-SC PLATYL OPAL TABS                     250MG 000     6.63     6.63
11-18-76                - 100.0 24440-TC RESERPINE TAB                        0.25MG 000     3.49     3.31

          12/27/75                    401.0-PRIMARY: ESSENTIAL BENIGN HYPERTENSION                             0000075600 20 1076342002144
11-18-75          OFFIC    1.0 90040-   BRIEF EXAM EVAL A/O TREATMENT               000    12.00     8.28

10-20-76 11/15/75*PHAR     100.0 90760-PO ACTIFED TRIPOLIDINE AND PSEUDOEPHED  TABLET 000     7.61     7.61 PHA171510 26 1076207301223
10-20-76                - 100.0 17170-SC PROPANTHINE PROPANTHELINE BROMIDE    15MG  000     8.94     8.94
10-20-75                -2340.0 63030-PO DIGEL                                LIQ   000    12.69    12.69
10-20-75                -  50.0 23020-PO APC WITH CODEINE TABS                1/2GR 000     6.01     6.01
10-20-75                - 100.0 20360-PO SODIUM SALICYLATE TABS EC            10GR  000     4.47     4.47
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MINNESOTA

URBAN TEACHING HOSPITAL

IMPACT OF POSSIBLY INAPPROPRIATE DRUG THERAPIES ON
THE NUMBER OF HOSPITAL ADMISSIONS

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	NUMBER OF HOSPITALIZATIONS	PER CENT OF TOTAL HOSPITALIZATIONS*	RANK ORDER
UNDERUTILIZATION	19	.93	4
OVERUTILIZATION	8	.39	5
IATROGENIC	6	.30	6
CONTRAINDICATED COMBINATION	3	.15	7
CONTRAINDICATED BY DIAGNOSIS	24	1.18	3
ADVERSE REACTIONS	27	1.33	2
ADVERSE DRUG EFFECTS AND DRUG DEPENDENCY **	39	1.92	1
TOTAL	126	6.20	

* TOTAL NUMBER OF HOSPITALIZATIONS (N) EQUAL 2,035

** REPORTED AS A DISCHARGE DIAGNOSIS

MINNESOTA

URBAN NON-TEACHING HOSPITAL

IMPACT OF POSSIBLY INAPPROPRIATE DRUG THERAPIES ON
THE NUMBER OF HOSPITAL ADMISSIONS

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	NUMBER OF HOSPITALIZATIONS	PER CENT OF TOTAL HOSPITALIZATIONS*	RANK ORDER
UNDERUTILIZATION	7	.93	4,5
OVERUTILIZATION	8	1.06	3
IATROGENIC	3	.40	6,7
CONTRAINDICATED COMBINATION	3	.40	7,6
CONTRAINDICATED BY DIAGNOSIS	22	2.91	1
ADVERSE REACTIONS	7	.93	5,4
ADVERSE DRUG EFFECTS AND DRUG DEPENDENCY **	9	1.19	2
TOTAL	59	7.82	

* TOTAL NUMBER OF HOSPITALIZATIONS (N) EQUAL 755

** REPORTED AS A DISCHARGE DIAGNOSIS

MINNESOTA

RURAL HOSPITAL

IMPACT OF POSSIBLY INAPPROPRIATE DRUG THERAPIES ON
THE NUMBER OF HOSPITAL ADMISSIONS

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	NUMBER OF HOSPITALIZATIONS	PER CENT OF TOTAL HOSPITALIZATIONS*	RANK ORDER
UNDERUTILIZATION	5	1.72	4,5
OVERUTILIZATION	5	1.72	5,4
IATROGENIC	4	1.38	6
CONTRAINDICATED COMBINATION	0	----	7
CONTRAINDICATED BY DIAGNOSIS	7	2.41	2,3
ADVERSE REACTIONS	9	3.10	1
ADVERSE DRUG EFFECTS AND DRUG DEPENDENCY **	7	2.41	3,2
TOTAL	37	12.74	

* TOTAL NUMBER OF HOSPITALIZATIONS (N) EQUAL 290

** REPORTED AS A DISCHARGE DIAGNOSIS

ARKANSAS

URBAN TEACHING HOSPITAL

IMPACT OF POSSIBLY INAPPROPRIATE DRUG THERAPIES ON THE NUMBER OF HOSPITAL ADMISSIONS

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	NUMBER OF HOSPITALIZATIONS	PER CENT OF TOTAL HOSPITALIZATIONS*	RANK ORDER
UNDERUTILIZATION	17	.92	1
OVERUTILIZATION	2	.11	6,7
IATROGENIC	3	.16	5
CONTRAINDICATED COMBINATION	2	.11	7,6
CONTRAINDICATED BY DIAGNOSIS	16	.87	2
ADVERSE REACTIONS	10	.54	4
ADVERSE DRUG EFFECTS AND DRUG DEPENDENCY **	15	.81	3
TOTAL	65	3.52	

* TOTAL NUMBER OF HOSPITALIZATIONS (N) EQUAL 1,846

** REPORTED AS A DISCHARGE DIAGNOSIS

ARKANSAS

URBAN NON-TEACHING HOSPITAL

IMPACT OF POSSIBLY INAPPROPRIATE DRUG THERAPIES ON
THE NUMBER OF HOSPITAL ADMISSIONS

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	NUMBER OF HOSPITALIZATIONS	PER CENT OF TOTAL HOSPITALIZATIONS*	RANK ORDER
UNDERUTILIZATION	9	1.25	3
OVERUTILIZATION	1	.14	7
IATROGENIC	3	.42	6
CONTRAINDICATED COMBINATION	4	.56	5
CONTRAINDICATED BY DIAGNOSIS	21	2.91	1
ADVERSE REACTIONS	11	1.53	2
ADVERSE DRUG EFFECTS AND DRUG DEPENDENCY **	9	1.25	4
TOTAL	58	8.05	

* TOTAL NUMBER OF HOSPITALIZATIONS (N) EQUAL 721

** REPORTED AS A DISCHARGE DIAGNOSIS

ARKANSAS

RURAL HOSPITAL

IMPACT OF POSSIBLY INAPPROPRIATE DRUG THERAPIES ON
THE NUMBER OF HOSPITAL ADMISSIONS

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	NUMBER OF HOSPITALIZATIONS	PER CENT OF TOTAL HOSPITALIZATIONS*	RANK ORDER
UNDERUTILIZATION	2	.48	3,4
OVERUTILIZATION	1	.24	6,5
IATROGENIC	0	---	7
CONTRAINDICATED COMBINATION	2	.48	4,3
CONTRAINDICATED BY DIAGNOSIS	7	1.67	1
ADVERSE REACTIONS	1	.24	5,6
ADVERSE DRUG EFFECTS AND DRUG DEPENDENCY **	6	1.43	2
TOTAL	19	4.54	

* TOTAL NUMBER OF HOSPITALIZATIONS (N) EQUAL 420

** REPORTED AS A DISCHARGE DIAGNOSIS

CALIFORNIA

URBAN TEACHING HOSPITAL

IMPACT OF POSSIBLY INAPPROPRIATE DRUG THERAPIES ON
THE NUMBER OF HOSPITAL ADMISSIONS

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	NUMBER OF HOSPITALIZATIONS	PER CENT OF TOTAL HOSPITALIZATIONS*	RANK ORDER
UNDERUTILIZATION	8	.47	3
OVERUTILIZATION	2	.12	6,7
IATROGENIC	3	.17	5
CONTRAINDICATED COMBINATION	2	.12	7,6
CONTRAINDICATED BY DIAGNOSIS	21	1.22	1
ADVERSE REACTIONS	6	.35	4
ADVERSE DRUG EFFECTS AND DRUG DEPENDENCY **	12	.70	2
TOTAL	54	3.15	

* TOTAL NUMBER OF HOSPITALIZATIONS (N) EQUAL 1,720

** REPORTED AS A DISCHARGE DIAGNOSIS

CALIFORNIA

URBAN NON-TEACHING HOSPITAL

IMPACT OF POSSIBLY INAPPROPRIATE DRUG THERAPIES ON THE NUMBER OF HOSPITAL ADMISSIONS

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	NUMBER OF HOSPITALIZATIONS	PER CENT OF TOTAL HOSPITALIZATIONS*	RANK ORDER
UNDERUTILIZATION	2	.29	4
OVERUTILIZATION	0	---	7
IATROGENIC	1	.15	5,6
CONTRAINDICATED COMBINATION	1	.15	6,5
CONTRAINDICATED BY DIAGNOSIS	5	.74	1
ADVERSE REACTIONS	3	.44	3
ADVERSE DRUG EFFECTS AND DRUG DEPENDENCY **	4	.59	2
TOTAL	16	2.36	

* TOTAL NUMBER OF HOSPITALIZATIONS (N) EQUAL 680

** REPORTED AS A DISCHARGE DIAGNOSIS

CALIFORNIA

RURAL HOSPITAL

IMPACT OF POSSIBLY INAPPROPRIATE DRUG THERAPIES ON
THE NUMBER OF HOSPITAL ADMISSIONS

TYPE OF INAPPROPRIATE DRUG THERAPY POSSIBLY CAUSING HOSPITALIZATION	NUMBER OF HOSPITALIZATIONS	PER CENT OF TOTAL HOSPITALIZATIONS*	RANK ORDER
UNDERUTILIZATION	4	.61	4
OVERUTILIZATION	9	1.37	3
IATROGENIC	2	.31	6
CONTRAINDICATED COMBINATION	1	.15	7
CONTRAINDICATED BY DIAGNOSIS	18	2.75	1
ADVERSE REACTIONS	3	.46	5
ADVERSE DRUG EFFECTS AND DRUG DEPENDENCY **	18	2.75	2
TOTAL	55	8.40	

* TOTAL NUMBER OF HOSPITALIZATIONS (N) EQUAL 655

** REPORTED AS A DISCHARGE DIAGNOSIS

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ACKNOWLEDGMENT

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